

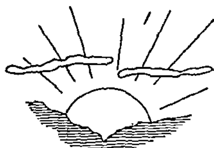

The beauty and peace of nature unspoiled speaks to every heart and promotes the health of body and soul.

# YOUR GUIDE TO HEALTH

by

Clifford R Anderson, M D.

"YOUR RADIO DOCTOR'



Oriental Watchman Publishing House

Poona, India

*First Edition 25,000 copies Registered November 15 1967*



**Owned by the Oriental Watchman Publishing House P O Box 35 Poona 1 India. Printed and published by V Raju at and for the Oriental Watchman Publishing House, Poona, India. 1153-67**

# FOREWORD

Next to life itself health is our most precious gift But most of us take it for granted until we are deprived of it Then we put forth every effort, and ofttimes spend more than we can afford to regain our health

The lesson of course, is that we would be wise to guard our health while we have it

This observation is so evident it would seem unnecessary to make the point Yet so many show by the way they live that they are not diligent to preserve their health Either through ignorance or carelessness they abuse their bodies and eventually reap the unhappy results

Such a situation should not be Today there is a mass of health information obtainable by all who desire to maintain good health And in this book the author, Dr Clifford R Anderson, has drawn from the evergrowing knowledge of medical science facts that a layman would wish to know and has presented them in a simple, readable style Also, the author has kept especially in mind our area of the world and discusses health conditions, and medicines available, in our situation Thus here is a book that is not merely a reprint of one written for another country, but which has been prepared for you

To help the reader find quickly the information he needs, the chapters listed in the Table of Contents on page 7 have been subdivided Furthermore a detailed index has been provided beginning on page 644

In line with the laudable philosophy that an ounce of prevention is worth a pound of cure,' the emphasis in this volume is placed first upon maintaining good health, and then upon methods to help the body regain lost health Beginning at the most advantageous time for an individual to acquire the best possible reserve of good health—before birth and during the early years of life—it advises

the parents how to give the baby the very best start, and goes on to deal with the many and varied problems of health that may be met through to old age

But bodily health is not the only concern of this book Far from it In fact, from the very first chapter it is taken for granted that we *cannot separate the body from the mind and soul Body,* mind and soul are a unit, and therefore physical health depends to a very great degree upon mental and spiritual health Consequently, we have such chapters as "Happiness in Marriage," "Happiness at Home," and "Help for Troubled Minds."

A word about the author of *Your Guide to Health* will be welcomed by the reader Dr Clifford R. Anderson, recently deceased, was an Australian born physician who practised in the United States But he was best known as the lecturer of the radio programme, *Your Radio Doctor* As such he was, and still is recognized by millions around the world, for *Your Radio Doctor* is still heard throughout India, and other areas of South and East Asia, and in Africa, Europe, North America, Australia, and in many other parts of the world *Thus to a great number of our readers this book will come as from* an old and trusted friend

And so it is with confidence that this new volume will prove to be of great service to many that we send it upon its way

THE PUBLISHERS

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CHAPTER 1

# HAPPINESS AT HOME

One beautiful day I watched two little brown birds building a nest in a tree It was the time for mating, the loveliest season of the year, all nature was radiant and beautiful Green leaves covered the trees flowers were blooming everywhere Fascinated, I watched those little birds flitting about searching for the materials needed for their nest

The male bird was very active, bringing all kinds of twigs and grass and other things He seemed to thoroughly enjoy the task of building a home for his future family But the little lady bird was not idle by any means In fact, she was the one who made many of the decisions, as together they built their nest.

Then something strange began to happen When the nest was half built the little lady evidently decided that the place was not suitable Some hidden instinct told her that she was building her nest too close to the neighbour s cat! So she tore it all apart and started building again in a safer spot And regardless of how much her mate might protest, she apparently let him know that in this matter her decision must be final It was his job to feed and protect the family, hers to raise the brood

When the nest was finally completed the little mother took some of her own downy feathers to carpet the floor of the little home. Then she laid three tiny eggs in it, and covered them with the warmth and protection of her own body What a scene of beauty and peace!

On a branch near by her mate was perched, singing as if his very throat would burst with pride and melody He wanted every one to know that this was *his* home *his* family Several times each day he took her place on the nest while she flew off for food and rest

*The Babies Arrive!*

After a few weeks there came a day of great excitement. The young birds were chipping their way through their egg shells and stepping out into the world for themselves Of course they were not yet ready to live on their own. They had no feathers. Their beaks

were large and ugly, and their mouths were constantly open for food.

All day long, from dawn to dark, those parent birds flew back and forth, bringing food for their hungry youngsters And how those little ones could eat! They never seemed to be satisfied. They grew rapidly, amid much chirping, and in a few more weeks were ready to care for themselves As soon as their feathers were fully grown they were taught to fly, and thereafter they were able to live on their own

The cycle of life is simple enough in a small bird, but it is delightfully beautiful The same is true, though in a much broader sense, on the human level In either case family relationships figure prominently The creation of a comfortable home in which little ones can be reared is a normal part of life.

Nature can teach us valuable lessons The young are early trained to take their normal place in life. No longer do we find the older birds trying to make decisions for the younger, or to direct their lives Nor do we find the younger birds waiting around for a "hand out" from their parents. When they are fully grown they move out and live their own lives according to the laws of nature This is evidently what their parents expect them to do By this simple act they avoid the types of family troubles that distress many men and women today

The sooner our youth learn to face life and make decisions for themselves, the more successful they will be in later years Sensible training must begin at birth and continue all through childhood and youth

A human home is far more complex than a bird's nest, for the young human has many more lessons to learn That is why he remains with his parents for several years. His physical growth is slower than that of most animals, and his mind must develop in proportion to his place in life.

*Happiness and Health*

Every human home was originally intended to be a real haven of rest—a little heaven on earth, where all of the children would learn to be unselfish Attitudes of love and loyalty were to be inculcated into their minds. It was to be a place where youth could grow up happily, and to which they might return for comfort and guid



**Love and understanding is the basis of home happiness**

ance even after having left their parents to establish new homes for themselves Such an ideal whenever realized goes far to minimize problems of later life

True there are those who think that life must go on according to the brutal ways of the jungle They claim that human feelings *really do not matter This is far from true* Man was '*made in the* image of God that he might reflect the glory and love of God Originally he was placed in a beautiful garden home, not in a cruel, heartless jungle with no law except survival of the fittest.

A happy home should be the heritage of every person who comes into this world. No child should be allowed to remain long in an unhappy home, for unhappiness can soon cause illness of both mind and body. The contented person who has been privileged to know and understand the better ways of life, and who lives sensibly, can usually enjoy the best of health both mentally and physically.

If children everywhere were given the right kind of home training, there would be no more wars, no more crimes, and no more poverty. Almost all the problems that afflict the human race can be traced to wrong environment during childhood and youth. Proper home training develops a balanced personality.

Many people are too self centred to live happily together. Even when two people marry, it is often impossible for them to get along well with each other. The reason? They are so wrapped up in their own wants and whims that they cannot think of the other person. This attitude is often unconsciously copied by the children and so it passes on from one unhappy generation to another.

*Price of a Happy Home*

A happy home is never an accident. Someone always has to pay the price, not only in money, but also in the deeper realities of life. But a happy home is worth whatever it may cost. Fortunately it is not a question of money. People who are very poor in this world's goods can be so happy that their joy exceeds anything that money can buy. There are others who have all that this world can offer, and yet are utterly miserable. Happiness does not depend upon the amount of money one possesses, but rather on a wholesome personality and outlook on life.

To build a happy home, both parents must be prepared to get along well with each other. Their personalities must blend together. Each must respect the rights of the other, and both must be prepared to work out their problems without quarrelling. Neither parent can expect to be right all the time. Each must be willing to give in to the other for the good of all in the home. Defects in one's own disposition or habits may have to be corrected in order to build a successful and well adjusted family relationship. Both parents need to remember that the *little* joys, kindnesses and happy surprises really make life worth while.

### *Why Some Homes Fail*

Selfish people never create happy homes Their personalities are too immature. A person who is basically selfish has never completely grown up in mind He is still an undeveloped adolescent, not a mature person He will always want his own way, regardless of the feelings of others. By his actions he is saying, "I want what I want when I want it"

Such an attitude can never build a truly happy community Young people should certainly keep this in mind when considering marriage It is never wise to marry a selfish person, for the chances of changing him or her are slim indeed That is why so many homes endure only under great stress or eventually break up People who are really in love with each other are not selfish or demanding. They are willing to go more than half way in solving any problem they may face.

Jealousy has no place in a happy home A jealous person tends to be insecure. He is never sure of himself. A happy home cannot be built around a person whose feelings are easily injured Real homes are built on love that endures, not on flighty feelings that fade away under the touch of trouble or criticism

### *Centre of the Home*

The true centre of every home is the mother No one else can ever take her place. Her tastes, her desires her ideals, like those of the little mother bird, will influence everything that goes on within that home. All the interests and activities of a happy family centre around the mother If she is kind and cultured, her home will reflect her fine ideals But if she is careless or ignorant, the home will quickly show her poor attitude or lack of training

Education is very important to a young man if he is to succeed in the business and professional world Everyone will agree on this But education in the art of home-making is even more important for a young woman, for into her hands has been committed the very future of the human race Every girl should be given thorough training in the principles of health, child care and home skills. The success of the family, the community, the nation and the world depends on the young women of today and the kind of homes they establish There is no greater responsibility than this

To be a place of true happiness, the home should be bright and cheerful Every day each room should be filled with sunshine and fresh air, so that every part of the house will be sweet and clean for the family to enjoy Above all, it should be a place of joy and love, a place where the door is ever open to friends and neighbours, and where even strangers will be received with hospitality and kindness.

Remember this Happy parents create happy homes Happy homes produce happy children Happy children make a happy community and happy communities make a happier world

CHAPTER 2

# GUARDING YOUR FAMILY'S HEALTH

Human families have enemies The larger ones, such as snakes and tigers, are readily detected and warded off These are not much of a problem, except in certain areas We have many more dangerous enemies to worry about than these, enemies far too small to be seen without the aid of a powerful microscope These are the enemies we call **germs** They are with us wherever we go, whether we live in a city or in the country Many germs are relatively harmless to the human body, others are vicious and deadly

Most germs are exceedingly small In fact you would have to line up several thousand of them to make a line one inch long! The very smallest, known as viruses, cannot be seen even through a regular microscope They can be seen only by the ultra powerful electron microscope But the diseases they cause, such as polio and smallpox, are among the most serious known to man

### *Germs All Around Us*

Germs are all around us in the air we breathe, and often in the water we drink. They find their way into our food usually because of poor methods of handling Cooks and others who work around food are often responsible for contaminating food and spreading harmful diseases through whole communities Nothing but total cleanliness should ever be allowed among those who prepare meals for your family

Most germs can grow only in warm moist places, such as the creases in the skin the palms of the hands, and around the rectum and genital areas It is important for all of us to wash our hands frequently and bathe the whole body thoroughly every day This will help to protect us from serious infections We should also be sure to clean our teeth and gums, brushing them carefully two or three times every day (see Chapter 42)

### *Sunlight Kills Germs Quickly*

Nearly all germs die quickly when exposed to direct rays of the sun. Nothing is more powerful than sunlight in ridding the community of germs. The sensible home maker will see to it that her house is well ventilated and thoroughly aired each day. Allow the sun's rays to fall directly on the floors in each room as often as possible. Blankets and other bedding should be frequently placed in the sunshine. Tuberculosis germs are often found in the dust of the street, mostly because of spitting or other objectionable habits. They are often brought into the house on people's feet. But they are very dangerous, especially to young children crawling around on the floor.

All floors should be swept and thoroughly cleaned every day. Everyone who comes into your house brings in some germs. Most of these are not dangerous, but a few if given the chance may be destructive enough to cause serious illness. The traditional Eastern custom of removing one's street shoes and washing one's feet before entering a house has much to recommend it. Cleanliness is absolutely essential to health. Clean hands, clean bodies, and clean homes are the very basis of civilization.

### *Animals Also Carry Disease Germs*

Disease germs may enter your home in other ways. They may be carried in on the feet and bodies of domestic animals. Mice and rats sometimes spread dangerous germs, including those that cause plague and typhus. Flies are particularly dangerous, for they carry the germs of typhoid, dysentery, diarrhœa and other gastrointestinal complaints. Even birds that migrate from one part of the country to another may carry germs and viruses that cause serious epidemics.

Germs are a real menace to the human race. Whenever a major emergency arises, such as an earthquake or other disaster, the first thing the public health authorities are concerned about is the preservation of a good water-supply and the proper disposal of sewage and other refuse. This is imperative if the community is to be kept free from epidemic diseases. The same concerns affect our ordinary ways of life. We ourselves are each responsible for our own health



Sunlight promotes health and discourages disease.

*Disposing of Waste Materials*

Proper disposal of body wastes is one of the first laws of health Today many people are fortunate enough to have running water in their homes Flush toilets are now replacing the more primitive types even in some rural areas But under these circumstances what happens to the waste materials? This modern convenience if misused can be hazardous to the health of a community

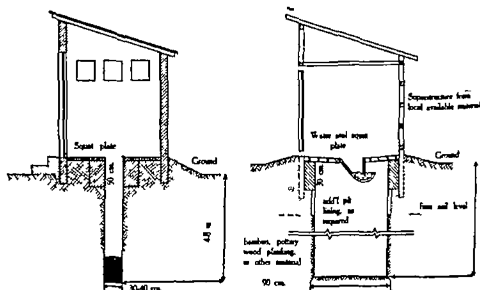
Some people merely run the waste water off into some near by stream, thinking that running water purifies itself This is only partly true. Often whole communities are ill because of drinking water that has been contaminated by other people farther up-stream. It is not

wise to use water that flows from some other town or village. Nor should a person run waste water into a near by stream and forget about it. Someone miles away from you may suffer through your neglect. If in doubt, be sure to *boil all the water* you or your family drinks. (For further information concerning water, see the next chapter.)

Every family living in rural areas should have a suitable way of disposing of waste materials, such as a septic tank. This method was actually discovered in India many centuries ago. Modern engineers have made improvements, but the septic tanks of today still work on the same principles as did those of ancient times.

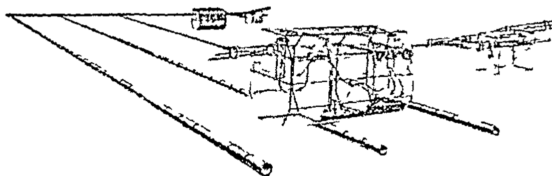
### *Building a Septic Tank*

The best method of rural sewage disposal is to construct some type of septic tank. This is not difficult. Helpful diagrams can usually be obtained from government agencies such as the Directorate of Health Services. In some places ready made portable models are available from sanitary engineering firms. For those who wish to construct their own, the following standard directions will give basic guidance. Dig a large rectangular hole in the ground. Pour concrete into forms to build watertight floor and walls. It should have three compartments as shown in the picture. The top of the tank should




Two types of toilets which provide for sanitation and health.

then be completely covered to control odours and keep out flies All the waste water from the house can then be run into the tank As the *waste materials flow slowly through these chambers, the useful bacteria or germs* present in the tank bring about certain chemical changes that eventually remove danger of infection and contamination To seed the proper kind of germs into a new septic tank it is



Modern septic tank with drainage pipes. Enlargement in right foreground shows how tank is designed and built.

well to place in it a bucketful of fresh horse manure or failing this, a bucketful of dirt taken from about 6 inches below the surface of the ground

The water flowing away from a well constructed septic tank should be clear and odourless, but there may still be a few germs present One should be careful not to allow this water to contaminate his source of drinking water, just in case the septic tank is not one hundred per cent efficient.

*Other Methods of Sewage Disposal*

If you have no running water in your home, you must use some other method of disposing of body wastes Modern chemical toilets are excellent, but rather expensive. Many families, especially in rural areas, still depend on bore-hole latrines or pit privies. This arrangement usually consists of a small shed that stands over a pit or hole in the ground The pit should be at least *six feet deep* It should be located at least 75 feet away from any wells or sources of drinking water The privy or outhouse should be well ventilated and carefully screened so as to prevent the entrance of flies The squat plate

over the pit should have a removable cover to keep out flies. Every few days the waste materials should be covered with chloride of lime to keep down odours and reduce the number of flies. Never permit people or animals to contaminate the ground around your home. Your children would be endangered

Clean living is the first and most important step in the prevention of disease. When this principle is followed, the health and vitality of the family and of the nation improves. Each family must protect itself against disease. We should see to it that our neighbours also understand the importance of clean living, so that all our homes will be safe and happy places

CHAPTER 3

# PROTECTING YOUR WATER SUPPLY

Rain and snow are the original sources of all our drinking water. Raindrops are formed from the heavy vapour arising from the sea. As clouds pass over the land, they condense into drops of rain or flakes of snow, depending upon the temperature of the atmosphere. We are all familiar with the fact that a rainstorm clears the air, washing it clean and free from dust and smoke.

*Raindrops* are usually free from germs, although they may contain a little dust and perhaps a few harmless microbes. Trouble starts when the raindrops strike the surface of the earth. The rain that collects on cultivated fields, farmyards and city streets contains many different kinds of germs, some of which are harmful to man. Many of these germs have come from the digestive organs of animals and human beings and may cause serious intestinal diseases.

But the trouble is not always with the water that falls onto the ground. People who use tanks and cisterns must also be careful. Roof water may be badly contaminated with germs from dust blowing up from the street. There is also the problem of germs from the droppings of birds. Tank or cistern water should always be boiled or sterilized.

The water from ponds and lakes is always contaminated. Much of this water may have washed down from streets and highways, or from fields contaminated by human or animal excreta. Even though this water may appear sparkling and clear, it often contains harmful germs such as cause typhoid and dysentery. Also it may be infested with intestinal parasites, liver flukes, hook worms and amœba.

The most polluted water of all may be the rivulet rushing down a hillside just after a heavy shower of rain. This is particularly true following a long spell of dry weather.

When rain strikes the ground, it divides and travels in two different routes toward the ocean. Part of the water remains on the sur

face and flows into small streams, then into larger rivers headed for the sea. This surface water is always badly contaminated

The other part of the rainfall penetrates the surface soil. It supplies the needs of the plant world This water flows underground toward some stream or pond and by this means some of it finally reaches the sea Sandy soil allows the water to penetrate freely Clay and rock may prevent further penetration, so that the water remains at certain levels, or strata If the side of a hill cuts across one of these barriers, the water may seep out in the form of a spring When we sink a well, we tap these same underground sources of water

Most spring water is pure and free from germs In passing through the different layers of earth, the germs either die or are largely filtered out. Well water from tube-wells and other types of closed wells is generally pure also, provided there is no surface contamination near the vicinity of the well itself People living in the country need to take great care to keep their own water supplies free from contamination Animal wastes on the surface of the ground are a constant menace To guard against this, the mouth of the well should be set at a level higher than where the animals are, preferably some distance away from them. This will help to prevent pollution from animal droppings or human carelessness

### *Purifying Your Own Drinking Water*

If there is any question about the purity of your own drinking water, you should boil it. This is a basic precautionary measure. Water which looks pure may actually be full of germs If you have your own well, you can perhaps have the water tested by an expert from the public health department in your area.

City water supplies are not always safe, especially during the drier times of the year Boiling the water for one minute will destroy most harmful germs. That is why it is generally safer when travelling to order hot drinks instead of cold ones But wherever you are, remember that the purest water can easily be polluted unless it is kept in clean covered vessels

One of the best chemicals for purifying drinking water is *calcium hypochlorite* This is now supplied in ampoules, a one-half gramme ampoule being sufficient to purify thirty six gallons of water This is the process referred to as chlorination Any good household bleaching solution will also destroy bacteria They all contain sodium hypo-



chlorite. Add just ten drops of the bleaching solution to each gallon of water and wait a half hour before using it One quart of the bleaching solution will purify 1,500 gallons of water These bleaching solutions are simple and inexpensive They are also quite safe.

A solution of sodium hypochlorite marketed in India for water purification purposes is known as Chloragen.

*Water the Liquid of Life*

Water is truly the liquid of life Nothing else can ever take its place. Water enters into every reaction within the human body More than two-thirds of your body is composed of water in some form

Every day your kidneys filter between fifteen and twenty gallons of water for you Most of this fluid is taken back into the blood stream again Only a small fraction passes out as urine or perspiration This excreted water carries away the waste chemicals your body no longer needs.

The person who does not drink six to eight glasses of fluid daily may soon have trouble with his internal organs. He may suffer from constipation and other digestive complaints *Stones* may form in his kidneys and bladder, and severe urinary infections may result. The lack of sufficient water also places an extra burden on his heart. Everyone who desires to remain strong and healthy must have an abundant supply of pure water each day

In very warm climates six to eight glasses of water a day may not be enough A very simple way of checking the adequacy of intake is to observe the colour of the urine. If it is darker than a very light yellow, one needs to drink more water than he has been drinking

CHAPTER 4

# VISITORS WITH DIRTY FEET

Did you know that one pair of ordinary household flies with the help of their progeny can produce many millions of their own kind in just a few weeks? Fortunately not all of these flies manage to reach adult life. They have many enemies But enough of them do survive to cause plenty of trouble.

Flies live almost entirely on filth They breed rapidly in all kinds of decaying matter—human wastes as well as garbage, manure from cows, goats, horses, pigs and chickens Each female fly is capable of laying up to 2,000 eggs, many of which may reach adult life within twelve days. These new young flies are then ready to start the cycle all over again

Some years ago a group of research workers wanted to find out how many germs an ordinary household fly might carry They were also interested to know what happens when a fly crawls over food So they caught eight flies and infected them with various kinds of germs They then allowed these flies to crawl over certain germ-free articles of food Fifteen minutes later they found over 7,000 germs on that food Half an hour later there were more than half a million germs! Five hours later there were *three and a half million germs!* Need we wonder that so many people are sick when the foods they eat are so easily contaminated by flies?

### *Why Flies Are Dangerous*

Flies not only carry germs on their feet and legs, but also *inside* their bodies Each fly has a sort of pouch or reservoir which it fills when it eats. After taking a full meal at some filthy rubbish dump, the fly wings its way to some more comfortable spot where it can rest and digest its meal There the fly transfers this filthy material

from the pouch to its own stomach, often leaving parts of the meal behind This is what causes 'fly spots" on walls and ceilings, and perhaps even on your own food, if you are careless enough to allow flies inside your house

*Flies Carry Germs*

Flies carry many different kinds of germs, such as typhoid cholera, dysentery, scarlet fever and diphtheria They may also transmit the virus of polio or the eggs of intestinal worms and parasites Wherever they alight they leave behind them deposits of filth and germs This is especially dangerous when they alight on a child They contaminate dishes, eating utensils, kitchens, restaurants, food shops or storehouses, and because of this many young babies and older folk are ill! The wise mother will see to it that her child is protected from flies

Household flies may seem small and insignificant, but this makes them all the more dangerous For instance, those eight flies studied by the research team were each found to be *carrying* no less than 750,000,000 germs! Where there are few flies there is less sickness. Where there are many flies, people are more often ill

*How to Get Rid of Flies*

The most effective way to deal with flies around your home is to *prevent them from breeding* Take a good look around your own premises and see if refuse needs to be cleaned up Be sure all rubbish, dust bins or garbage cans are properly covered and disinfected Don't allow anyone to dump filth near your living quarters Your family's health may be in danger



**Clean homes are our best defence against diseases carried by rats mice and other dangerous vermin.**

If you have to depend on an outside toilet, be sure it is well screened, kept clean, and continually cared for Use some suitable disinfectant whenever needed If you live in a rural area, do your part to see that manure is covered or disposed of, so that flies cannot use it as a breeding place. As soon as possible, this material should be spread thinly over the fields to dry The hot sun and cool nights will quickly kill fly larvae and maggots If these are not killed, they will soon become adult flies, ready to produce more of their own kind

*Protecting Your Home From Flies*

The best way to protect your home from flies is to place suitable wire screens over your doors and windows Be sure these screens are well fitted, so that small flies cannot find their way through the cracks Screen doors should be made to swing *outward,* so that flies lurking near by will be pushed away when the door is opened.

Flies inside the house may be exterminated in various ways The fly swatter, for example, is quite effective. Here is another simple, inexpensive method of getting rid of flies Just make a mixture as follows

3 tablespoons of formalin solution
1 tablespoon of sugar
1 pint of water

Place some of this mixture in a small glass jar Cover it with a small piece of blotting paper and a saucer turned upside down Then invert the glass jar, so that the saucer and the blotting paper are now at the bottom Next, place a thin match stick or toothpick under the rim of the glass. This will allow some of the fluid to ooze out around the blotting paper Flies attracted to the liquid will be quickly and painlessly destroyed Be sure to keep this glass of poison fluid out of the reach of young children and animals

Protect your foods by keeping them in a good ice box, refrigerator or screened meat safe This will help to prevent foods from spoiling It will also keep out flies and other pests. A good refrigerator will pay for itself in time by the food it saves

If you eat at a restaurant, be sure that the place is clean and tidy Remember any place that has flies and vermin is not a healthy

place in which to eat. If you are particular in these things, the restaurant owner will be more likely to keep his premises clean and wholesome, thus the whole community will benefit

*Dirty Dish water*

The water in which your dishes are washed may also be a common source of infection around the home The same is true in public eating places For instance, a public health officer examined the dish water in one large restaurant and found no less than 400,000 germs in every teaspoonful of that dish water in which cups and plates were being washed! No soap was being used To make matters worse the water was not hot enough Those germs were just having a nice tepid bath, and this encouraged them to grow all the more vigorously! Such dish washing is useless, and even dangerous It only spreads germs around and results in more illnesses

The wise person will keep his home as free as possible from harmful germs He will see to it that food and water used by his family are not contaminated These are good principles of health for everyone to follow at all times

But there are other winged visitors with dirty feet and germ filled bodies that must also be guarded against For instance, **cockroaches** may transmit dangerous germs and viruses from one person to another Keep the kitchen scrupulously clean at all times and provide adequate protection for all stored foods Try to seal off all crevices around water and gas pipes, especially those that run from one floor to another and from one room to another Keep the windows screened to prevent all insects from entering the home. DDT powder 10% or benzene hexachloride 1%, when spread around the haunts of cockroaches, will help to keep them under control Today there are many good sprays available These will also help to keep the neighbours cockroaches from coming into your home!

**Sandflies** are another serious problem in certain parts of the world, for they somehow transmit serious diseases such as leishmaniasis or kala-azar referred to in chapter 40 Sandflies usually bite after sunset. To guard against sandfly bites one should wear protective clothing and use a repellent of some kind to keep these pests away

Remember, wherever we go we are always surrounded by hidden enemies, such as flies, cockroaches, sandflies, bedbugs, germs and viruses All of these are just waiting for the chance to take advantage of any weakness on our part For good health we must keep ourselves and our homes clean and tidy at all times Such measures will help us to keep well so that we might really experience the full joy of living

CHAPTER 5

# FOODS THAT BUILD THE BODY

Did you know that if you live to the age of 70, you will probably eat more than *1400 times your own weight* in food? This is an enormous figure In terms of cash it amounts to far more than all your other household bills combined Every time you sit down to a meal you make an important decision concerning your own future What you eat, and how you eat it may determine how long you live, and whether you will be sick or well

Many people who could enjoy reasonably good health are suffering from various kinds of illness Most of them are neither sick nor well They are just dragging themselves around, half dead most of the time What a miserable existence! They are not sick enough to go to bed, and not well enough to do their work properly

In some cases the trouble may be due to some parasite, or some hidden cause of illness In many others the trouble arises from a faulty diet Too many people spend their money foolishly, then wonder why they and their children are sick or lacking in vitality

### *No Magic Pills*

Poor things! Many of them are looking for some magic pill *to help them out of their misery, but this is not the solution* They would be in far better health if they would only make a careful study of the laws of health, and then apply them in their own lives. What are these principles of good living? Let us start at the beginning

All forms of life whether plant or animal require certain essential food elements in order to live and reproduce their own kind These food materials must be present in the diet in the right proportion, and must be taken regularly

Like all the higher animals, the human body is composed of untold millions of living cells all very much alive, and all carrying out their particular functions. Each cell must be fed and cared for, otherwise it cannot work properly To be assured of this we must



choose a sensible diet This is one of our most important decisions in life The choice is ours We can blame no one else if we fail to use good sense. It is as simple as that.

So much depends on our making the right choice of food The human body has been beautifully engineered to operate smoothly without any trouble for many years, provided we treat it well Not only so, but our amazing bodies also have the power to combat illness fight disease, and replace worn out tissues with new living cells. But if we fail to provide the right kinds of food, the body will soon grow old and die. Not even the best of modern pills can help us then!

*Good Building Materials Essential*

When a man plans to build a house, he first secures the best materials he can afford He tries to order just the right amount of each so there will be no waste. Then he begins to build It is interesting to watch experienced men constructing such a house

The same is true of this most wonderful of all houses—the human body We each are builders, daily selecting materials for the building process going on within ourselves This construction job

begins at birth and continues for the rest of our lives. For a strong house, or a strong body, we must have the right materials Nothing inferior must be allowed to go into it Only the best will do This is even more true when one is recovering from some illness or injury

What are these body building materials? Doctors refer to them as proteins, fats, carbohydrates, vitamins, minerals, and water These are the materials we must have, in sufficient quantity and at the right time, if we hope to stay strong and healthy Where do we find them? In our foods, of course. Only from our foods can we derive the materials for building bones, muscles, nerves, and skin all of which are essential for the smooth working of every organ in the body *Hence the need for learning how to choose the right diet*

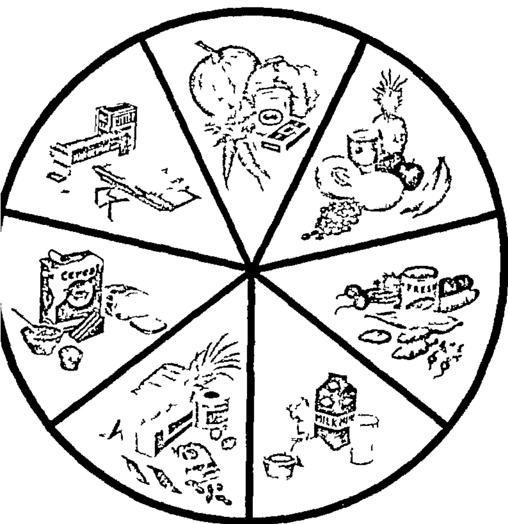
The most important of body building materials is *protein*, the great cell building food, so essential for maintaining life in the entire system Our food must also provide us with *calories* for energy, otherwise we would soon feel weak and worn out Most of our calories come from *carbohydrates* (or starches) and fats

Other very important chemicals, such as *vitamins* and *minerals*, are also needed in sufficient quantities to regulate all the activities of this highly complex machine, the human body Vitamins and minerals come almost entirely from plants and plant foods. For this reason vegetable foods must form an important part of our diet

To be sure of sufficient minerals and vitamins, we must select our foods from a fairly wide variety A good diet is not so much a question of money as of knowing how to choose and prepare foods properly We cannot live very long on an unbalanced diet no matter how much we may spend for food If we try to get along on a poor diet we will soon find ourselves in need of medical care.

*Lubricating the System*

Even the question of water is highly important. Far too many people take too little water for their own personal needs. Sometimes the water they take is contaminated, or else unfit for use A lack of water may slow circulation and thicken the blood stream thus increasing the work of the heart It may even result in the formation of kidney and bladder stones, and other serious complications. To be healthy, one must take plenty of pure water at least 6 to 8 glasses every day If in doubt as to whether the water you use is safe, boil it, or use it in hot drinks




The seven basic food groups. From the top clockwise (1) green and leafy yellow vegetables fresh, tinned or dried (2) fruits (3) vegetables, fresh or tinned (4) milk and other dairy products, such as cheese and curds (5) protein foods, including beans, dhal and eggs (6) whole grain cereals (7) fats. Vegetable fats are best for your heart and blood vessels

Even the finest diet may fail if our own attitude is faulty and full of gloom Many years ago a Hebrew sage gave this counsel 'A merry heart doeth good, like a medicine. In other words, a happy, optimistic person is bound to enjoy better health His whole body responds to the sheer joy of living A bright philosophy gives him something worth while to live for

*Overcoming Depression*

But the ancient scribe didn't stop there He added these significant words "A broken spirit drieth the bones' How true! We all know that an unhappy person—a pessimist—always looks on the gloomy side of things. He is depressed and discouraged with every thing he sees His unhappy attitude interferes with his digestion It slows down his circulation, makes him nervous and jumpy, spoils his sleep, makes him sceptical and suspicious of others, and takes the joy out of living All the vitamin pills and food supplements in the world will never make him happy

Maybe he needs a good cook, someone who knows how to prepare food, and serve it attractively This is most important if one is to enjoy life to the full Often a happy attitude is either gained or lost at the dinner table The smart man will recognize this and be grateful for the good things that come his way He will quit his complaining realizing that 'the best things in life are free

So, ladies, in planning food purchases, try to provide the best balanced meals for the amount of money available * Meals should lead your family to enjoy eating, and to be grateful for what they have. Provide a happy atmosphere in your home, without rivalry or favouritism Be contented, and make the most of what you have. Look on the bright side, and encourage your children to do the same. Mealtimes will then be pleasant occasions for all the family, and your children will appreciate the health and happiness you have given them

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*The best reference table for Indian foods is the Special Report Series No 42 *The Nutritive Value of Indian Foods and the Planning of Satisfactory Diets* a Government of India publication costing only Rs. 4 00 It provides information on the values of the various local foods for planning a basic diet. Order from Indian Council of Medical Research, New Delhi, India

Readers in countries other than India will be able to obtain similar dietary guides from their government health departments.

CHAPTER 6

# PROTEIN FOODS FOR HEALTH

Protein forms the most important part of every living organism It is also the essential nitrogenous constituent in all the foods we eat Protein is exceedingly complex in its structure and functions, and many of its reactions are still very mysterious. But this need not trouble you In planning for your family always be sure to have sufficient proteins in your diet These are basic to good nutrition Why is the body so dependent on protein? For the answer, let us examine the body mechanism and how it functions

### *Vast Family of Cells*

The human body is more or less like a vast family of cells, all with their own special work to do Some cells are bundled together in the form of powerful muscles Others are hard at work in the nervous system busy flashing messages here and there as needed by the body Still others have the job of holding us together, and providing stability through our bones joints, and sinews On the surface of the brain we have certain cells that enable us to think and plan for the future Everything we do, every reaction taking place within us, is carried out by one type of cell or another *This is life*

Just like the members of any good household, all these cells must be fed and cared for How is this done? Through the things we eat and drink, and in how we care for ourselves. Eating and drinking, bathing and resting, all are vitally important to health

### *Living Cells Are Different*

Now, if you touch a piece of metal on a cool day, it feels cold and hard But the skin of your face feels soft and warm Why? Because that skin is pulsating with life. The metal is cold and lifeless. That soft warm skin is composed of living cells, untold myriads of them, each with its special function to perform

What has all this to do with food? A great deal Each cell in your body is dependent upon *you* to keep it alive What you eat makes all the difference between life and death From the foods you eat each cell, whether in bone, muscle, nerve, or skin, builds up its own particular type of *protoplasm* This is the living, jelly like material of which all cells are composed Protoplasm is the basic material of which all living things, whether plant or animal, are made. And this protoplasm is built up from the proteins within our diet

But this is not all Protoplasm possesses within itself the remark able powers of movement, reproduction, and growth A baby grows from one single cell—the fertilized ovum, which is almost too small to be seen by the unaided eye Yet, that single cell will multiply itself into enormous numbers of other cells of many different types, and together they make up the human body

The living cells draw nutriment from the fluids that flow all around them, fluids that are kept in constant motion by the heart. During the growing period, each cell enlarges to about double its normal size then abruptly divides into two daughter cells, each equal in size to the original before the division began to take place Thus the original living protoplasm has now doubled in size and this carries on indefinitely as long as the individual continues to grow When he is fully mature this process of growth and division suddenly ceases and is not resumed except for the repair or replacing of cells worn out through injury or damaged by disease

### *Why Proteins Are Important*

Need we ask why proteins are so important in the diet? It is from proteins that the living protoplasm within the cells is built This wonderful living material is constantly absorbing and expending energy Part of this energy is needed for the growth of the cell itself The rest is expended on the work the cell does, and the heat it produces That is what keeps us warm and alive. And as long as we are alive and in good health, those cells of ours will maintain more or less the same temperature, regardless of the weather To do this, they must have an adequate supply of proteins and carbohydrates

Protein materials are built up first of all in plants and trees. Tiny factories in the leaves and roots are constantly at work, chang ing the simple chemicals of nature into more complex substances, such as proteins carbohydrates and fats ready for use in the human

body Carbohydrates and fats provide energy for all the cells of the body, while proteins are needed for growth and repair of cells. Proteins are by far the most complex group of substances known to science today

Fortunately, we don't have to understand all about the chemistry of foods and cells before we eat our meals We can leave that to the scientists, with all their ultramicroscopes and delicate equipment The important thing is to be sure we have sufficient proteins in our own diet, for these are the food substances that build a strong, healthy body

Proteins are needed continually to repair worn-out tissues. They are essential for building strong bones and muscles in growing children, and are needed all through life *We cannot stay well unless* we always have an adequate supply of protein in our diet

### *Amino Acids*

*Proteins are very complex substances, and there are endless* varieties of them Each type of protein contains a certain number of "building blocks, or amino-acids, always arranged in certain sequences according to the type of protein

The more highly complex proteins have many more of these amino-acids or building blocks The arrangement of these amino-acids is always important. Just the change of one or two tiny atoms in the protein molecules may produce an entirely different substance Some proteins, such as albumin, or the white of an egg, are easily dissolved in water Others such as globulin, can only be dissolved in a dilute, salty solution Both albumin and globulin are present in the blood stream, along with many other forms of protein all of which are continually necessary for life. All the proteins in the body are being continually changed and used up This means they must be constantly renewed. This renewal requires a good supply of protein in the diet at all times

Before they can be absorbed by the body, all the proteins in our foods must first be broken down into amino-acids This takes place in the small bowel *From there these fragments of protein are* carried to the liver by the blood stream, where they are changed and stored ready for future use. Out in the tissues these fragments are finally recombined into the type of protein needed by each particular kind of cell



This vastly enlarged model of a single body cell illustrates how complicated living matter is.

## *Good Sources of Protein*

Proteins are found in almost all foods but some contain far more than others *Richest sources* of protein are whole-grain cereals, peas, beans, lentils, peanuts, soy beans, milk, eggs, cheese, butter milk, meat and fish

For various reasons, many families prefer a vegetarian diet Because most kinds of meat are rather expensive, other families may find them beyond their means. Fortunately a wise combination of vegetables and cereals can supply all the protein a person actually needs

Milk and dairy products are among the best sources of protein Generally speaking they are easily digested and absorbed by the body Milk contains a complete protein and at the same time, provides calcium and phosphorus in just the right proportions for growing children and nursing mothers But even with so good a food as milk we must still add a word of caution Milk is easily contaminated by disease-carrying germs both during the milking process and also while being stored Therefore, all milk should be *boiled* or pasteurized before use. Boiling for several minutes will quickly kill all harmful germs

Meat is high in protein, but contains certain waste materials which must be eliminated by the kidneys. This means extra work

for the body, as well as trouble for those whose kidneys have been damaged by disease. There are many good reasons to live on a non-meat diet. However, vegetarians should be sure to get enough protein from other sources, such as ground nuts, peas, beans, pulses, Bengal gram, whole-grain cereals and milk products

Also green leaves are a useful source of protein. Their benefit is much greater than one would suppose from the percentage of protein they actually contain The reason is that although the percentage is low, the biological value is high The protein in green leaves enhances the value of a vegetarian diet considerably when such green leaves, raw or cooked, are included daily

### *Soy-beans Are Valuable*

One of the richest sources of protein is the soy bean. This simple food contains a complete protein in itself The soy bean has been cultivated in China and Japan for centuries

Soy beans actually contain *twice as much protein,* ounce for ounce, *as meat* and four times as much as eggs! Soy beans also contain a high quality vegetable oil that has no cholesterol in it Soy bean oil contains lecithin, too, which is of value in controlling the level of cholesterol within the body Soy beans are low in carbohydrates, so that diabetic patients can use them freely Soy beans are highly alkaline, and in addition contain all the important vitamins

Sprouted soy beans are used in many parts of Asia. They are an excellent source of vitamin C They are also rich in vitamins A and B complex Babies who are allergic to cow's milk can usually take soy bean milk without any trouble

In some countries a number of foods are made from the soy bean These include baked beans, canned or frozen green beans, bean sprouts, soy bean milk and cheese, vegetable shortening margarine, and salad oil Soy beans are also being used in ice cream and sweetmeats, soy breakfast foods, soy sauce, and soy flour Different types of soy beans are being produced for these purposes.

Modern nutritionists and food chemists are busy in many areas searching for new ways of using this important protein food Without doubt, the soy bean is an excellent answer to the problem of feeding an overpopulated world It is one of our very best foods, nature's great gift to man

CHAPTER 7

# MINERALS YOUR BODY NEEDS

The minerals in your body have many important functions to perform Calcium and phosphorus are needed for building strong bones and teeth Without these the body would quickly collapse. Other minerals act somewhat like "sparking plugs' for certain important chemical reactions Still others form intricate combinations with proteins, and thus are needed by the enzyme systems of the body

Many different minerals are found within the body, most of them in extremely small amounts, known as "trace metals." Some like cobalt and copper are important. Others are so rare, we are not even sure what some of them do But there are four minerals—calcium, phosphorus, iron and iodine—that are very important. We need much larger quantities of these, and so they must always be included in the diet, otherwise we would soon become weak and sick.

### *Calcium*

Calcium, or lime, is the most abundant mineral in the body Almost all of the calcium is found in the bones, where it provides strength and stability to the whole system A small quantity of calcium is always carried in the blood stream, where, among other things, it helps to prevent serious hæmorrhages

Calcium is also necessary for nerves and muscles. When the calcium level in the body drops below a safe level, the nerves become extremely irritable and the muscles go into spasm. Cramping pains may then be felt in various parts of the body, particularly in the larger muscles of the legs. But nowhere is calcium more important than in the muscles of the heart. When the calcium is reduced in the blood stream, the heart quickly loses its power, becomes irregular, and may even stop beating altogether Calcium is vital to health.

*Bone Diseases Involving Calcium*

In the bones, two minerals, calcium and phosphorus, are combined to give strength and firmness to the skeleton or bony structure of the body Many chemical reactions of the body require both calcium and phosphorus Hence there is a constant interchange of these minerals between the bones and the blood stream Young mothers need *extra* calcium, particularly during pregnancy and the nursing period Calcium is important for children and young people whose bones are growing rapidly

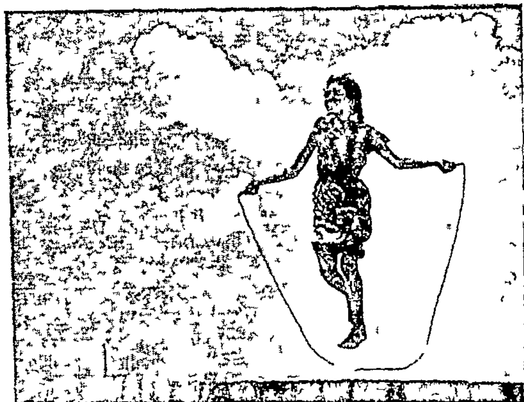
In the body there is a close chemical relationship between calcium, phosphorus, and vitamin D A deficiency in any of these may produce a serious disturbance in the framework of the body In children this disease is known as **rickets** In adults it is called **osteomalacia**

Infants with rickets are restless at night and tend to sleep poorly The constant movement of the head on the pillow may wear off the hair If this disease condition continues, the child's normal development is retarded He suffers from marked weakness in the bones, and there is considerable delay in his sitting up crawling, and walking The weight of his body may bend the bones and joints out of shape, causing such deformities as bow legs, pigeon breast, and knock knees.

In adults osteomalacia may cause the bones of the legs and thighs to lose their normal mineral content They become soft, and bend under the weight of the body The pelvic bones are flattened and the pelvic outlet narrowed—a very serious problem during childbirth The spinal bones may be shortened, so that the individual loses height and becomes dwarfed and stooped

Both rickets and osteomalacia can be cured, or at least brought under control, by taking an adequate amount of calcium, phosphorus, and vitamin D But some of the deformities are likely to remain if the condition is allowed to continue over a long period of time

*Best sources* of calcium are milk, dairy products, green vegetables, peas, beans, soy beans, eggs lentils, potatoes, and fish In other words, any well balanced diet usually has sufficient calcium to meet our needs People who are well-supplied with calcium during their childhood years not only live longer but also are less likely to develop some of the more serious diseases of later life. However calcium



cannot be absorbed unless we have an adequate supply of vitamin D in the diet

Older doctors were right in prescribing moderate amounts of fish liver oil and similar substances for babies and young children This is an excellent source of vitamin D When combined with the foods mentioned above, it will prevent serious bone deformities, such as rickets and osteomalacia However, the individual must also have sufficient *sunshine* to derive the greatest benefit from the vitamin D and calcium in his diet.

### *Phosphorus*

Phosphorus is another essential mineral having much to do with the functions of all body cells. Phosphorus plays a large part in many important chemical reactions It is associated with other important substances, such as enzymes proteins, and carbohydrates Phosphorus is necessary for all the muscles. Without phosphorus in your system you couldn t even lift an eyebrow or move a finger!

Phosphorus also helps to maintain the normal acid base balance of the body It is essential in building sound healthy teeth and strong bones

*Sources* Phosphorus is found in all the foods mentioned above as sources of calcium It is also present in whole-grain cereals, legumes, and nuts, and is particularly abundant in milk, where it is associated with calcium in just the right proportion for young children and nursing mothers Phosphorus is needed especially for patients who are recovering from serious illnesses and surgical operations

### *Iron in the Blood Stream*

Another very important mineral is *iron,* entering as it does into some of the most vital reactions of life The actual amount of iron in your system is not very great, but what that iron does is almost fantastic. Nothing in all the discoveries of the space age can be compared with the marvellous reactions of iron in your own body Without this metal you could not begin to live for even a moment.

Most of the iron is found in the red blood cells, where it forms part of that very complex protein known as *hæmoglobin* This is the red substance that gives colour to the blood It carries the oxygen to the tissues and keeps us alive

Red blood cells are extremely small Normally there are around 5,000 000 of them in a drop of blood no larger than the head of a pin! These tiny cells are rounded on the edges and hollow in the middle, something like a disc or plate This provides a relatively large surface compared with the volume of the cell, making for an easier exchange of oxygen and carbon dioxide

Each red cell contains 250 000,000 molecules of hæmoglobin and 1,000 000,000 atoms of iron! In the few seconds during which the tiny red cell is passing through the lung, it picks up 1,000,000 000 molecules of oxygen from the air in the lung At the same time it drops 1,000 000,000 molecules of carbon dioxide, which it has brought in from the tissues of the body This unwanted carbon dioxide is then removed from the body as we exhale or breathe out. So we must keep breathing fresh air to supply the red cells with oxygen to replace the carbon dioxide We call this *respiration*

Most cells in the body live for many years, perhaps even for life Not so the red cells of the blood They soon wear out from the strain of constantly whirling through the blood vessels

The red cells last only about four months, and then are destroyed This means that new cells must be produced in large numbers to replace those that can no longer be used

To meet this need, your body has to make many millions of new red cells every minute, just to keep up the normal supply If you lose blood through hæmorrhage or for any other reason, you must produce many more. Each tiny red cell carries its own little portion of iron, which the body measures out with such exactness that each cell has just enough iron for the work it has to do, and no more So careful is nature not to waste anything

*How Red Cells Work*

Everyone knows that iron rusts when it is exposed to the air Rusting is even more rapid when the air is damp This chemical reaction is known as *oxidation* A molecule of iron attaches itself to a molecule of oxygen from the air, forming iron oxide. This is exactly what happens when the red blood cells pass through the lungs The air within the lungs is warm and damp and the iron in the red cells actually rusts as it passes through the lung All this happens with split-second timing From there the cells are carried by the blood stream to the heart, and then pumped to all the distant parts of the body, always carrying their load of oxygen.

Out in the tissues the reverse process takes place. The hæmoglobin or pigment in the red cell readily gives up its load of oxygen and picks up a supply of carbon dioxide. These carbon dioxide-loaded cells are then carried back to the heart and pumped to the lungs, where they drop their load of carbon dioxide and pick up a fresh supply of oxygen The whole remarkable process requires just the right conditions within the body to operate efficiently Naturally anything that interferes with the flow of air into the lungs will cut down the amount of oxygen reaching the cells, and will reduce the amount of work we can do (Something similar to this happens when we go up into high altitudes where the oxygen is much less abundant We then have to breathe harder to get the oxygen we need )

Thus we see that iron is very important to the well being of all parts of the body Most of the iron from the worn out cells is not discarded, but is separated from the hæmoglobin in the liver and spleen and used over and over again However, a certain amount of

iron may be lost from the body for various reasons such as bleeding hæmorrhoids, injuries, menstruation, hook worm infestation or stomach ulcers. The latter often develop when a person uses aspirin too frequently, or when he smokes on an empty stomach

*Sources of iron* Many foods contain iron in one form or another, although not all of the iron may be absorbed Green leaves, eggs, apricots, raisins, potatoes, oatmeal, whole-grain cereals and liver are all good sources of iron Any well chosen diet probably contains enough iron for our needs, provided we are able to absorb it. If one tends to be anæmic, it may be wise to take some extra iron in the form of ferrous sulphate tablets, but these should be prescribed by one's own physician

*Iodine*

Actually, we only have a few grains of iodine in the body but what we do have is important to the well being of the whole system All kinds of things may happen when the iodine in the body gets out of balance Like other minerals, iodine is found in the foods we eat. From the digestive tract, the iodine passes into the blood stream and is soon picked up by the thyroid This is a relatively large gland located in the front lower part of the neck, just below the voice-box or 'Adam's apple"

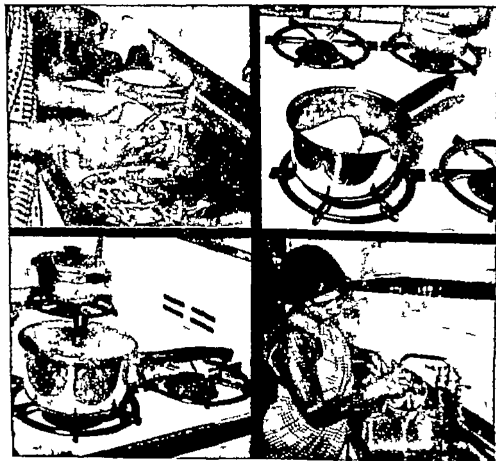
There the iodine is changed into *thyroxin,* a powerful hormone with many important functions to perform all over the body Thyroxin regulates all the activities of the various organs, it controls the rate at which a person grows, and even has some effect on how long he may live. People with too little thyroxin tend to feel the cold Those with too much may feel too hot.

The thyroid gland also controls the condition of the skin When a person has too little thyroid, the eyelids become puffy, and the face dull and apathetic The hair may be coarse, dry, and brittle, the tongue swollen, and the speech hoarse and slurred A young child whose thyroid is not functioning properly may develop into a dwarf with coarse features, thick lips, flat nose, and protruding tongue—a truly pitiable sight, known as cretinism This trouble stems from a deficiency of iodine in the mother's diet during pregnancy Such a child can now be helped, provided treatment is started early enough

The same condition (hypothyroidism) may come on later in life, and also after complete removal of the thyroid gland Such a

patient may have to take a certain amount of thyroid every day for the rest of his life. Tumours of the thyroid gland occur frequently in certain areas of the world and often seem to run in families. These are discussed under Goitre in Chapter 47 However, a person with a slight swelling in the neck may not actually need to have a surgical operation A few thyroid tablets may bring the gland back to normal activity, if the condition is mild

Prevention of thyroid trouble is relatively easy today Iodized salt is available almost everywhere, and in most cases it will prevent the trouble before it starts Other good sources of iodine include sea-foods and all vegetables grown near the seacoast Extra iodine is often needed during the rapidly growing years of childhood and adolescence, and also during pregnancy Foods selected from a wide



Don't waste minerals by deep peeling or pouring away

area usually contain enough iodine to meet all normal needs, and if not, iodized salt will make up for any deficiency

Common table salt, known as sodium chloride, is highly important in maintaining the normal acid base balance of the body Without a certain amount of salt in the system we could not live for long If a person has kidney or heart trouble his salt intake may have to be somewhat restricted, especially if he also has high blood pressure

In any case, table salt should be used in moderation Many people use far too much They pour it on their foods, completely covering the natural taste All this unnecessary salt puts an extra burden on the kidneys, and may even raise a person's blood pressure. A sensible person will always be moderate in the use of salt.

Oedema or swelling of the legs and ankles may occur when there is too much salt (or sodium) in the body This is due to incomplete elimination of salt through the kidneys The blood pressure may rise and may not go down again until the excess sodium has been removed from the body

On the other hand, extra salt may sometimes be needed during hot weather Heavy sweating removes large amounts of salt from the body, producing painful muscle cramps During hot weather most people, even those with mild heart trouble, can take a little more salt, especially if they feel unduly tired or aching in the muscles. Salt also encourages thirst, so that they will drink more water—which they need

*Preserving Your Minerals*

When preparing food, be sure that valuable minerals are not lost through carelessness. Too often these important nutrients are thrown away with the water in which the foods were cooked Minerals and also vitamins may be lost by too vigorous peeling, and overcooking

*Hints for the Cook*

Do not cook vegetables any more than absolutely necessary Use as little water as possible for the actual cooking This will help *to save those minerals so often thrown away Water from vegetables* should be used for making soups, curries gravies, or for flavouring other foods These important minerals are necessary to good health Don't be careless in the way you prepare foods. Save the minerals and the family will enjoy better health What is more, they will probably have fewer medical and dental bills to pay!

# VITAMINS TO KEEP YOU HEALTHY

Did you ever look at a grain of wheat? If not, take a good look at one next time you have a chance. You will find it quite interesting. The same is true of other grains. We recognize a grain of rice, barley, or wheat by its shape, and by its husk or outer covering. But did you know there are *six* outer coverings around a grain of wheat? These outer coverings are known as the bran.

Until recent years most people thought this outer covering had no value. So they threw this portion away, or fed it to the chickens. At least the hens got the benefit, even though humans foolishly did not.

Today we know better. Nature makes no mistakes in preparing food. Actually, the bran provides many important bulk forming carbohydrates to aid in keeping the intestinal tract fully active. Bran is a rich source of vitamin B complex. It also contains iron to help build red blood cells. In the deepest or sixth layer of this outer covering, there are substances of real value for the growth and repair of body cells. In addition, it also contains phosphorus, so necessary in building strong and healthy nerve tissues.

So far we have talked only about the outer covering of the grain. What lies within that white centre known as the endosperm? This part of the grain is composed mainly of carbohydrates and starches that provide fuel for energy and strength for the muscles. Proteins, known as gluten and gliadin, are also found in this white centre. This central portion is the only part of the grain that is saved when wheat is refined and made into flour. Although this starchy part of the grain is good, many valuable elements are lost from the grain when the flour is refined.

### *Wheat Germ*

But wait. We still have one other important part to discuss. This is the heart of the wheat—the germ or embryo. This is the

actual seed or part that sprouts and grows when a grain of wheat is planted This germ of the wheat is one of our richest sources of thiamine, or vitamin $B_1$, which is so essential for the normal functioning of the nervous system Thiamine is also important for the proper action of the digestive organs, and for promoting normal growth in children and young people. Like the bran, the germ of the wheat is also separated from the flour in modern refining processes

### *They Are Robbing Your Children*

Why do modern manufacturers remove the bran and the germ of the wheat? Many consumers seem to prefer white bread for reasons of prestige. Also white flour is easier to preserve The bran and germ in whole wheat flour tends to spoil if the flour is stored for any length of time. They also attract weevils that spoil the flour Evidently the weevils know what is good! Although ordinary white flour still has plenty of starch or carbohydrates, it does not contain the elements needed for normal growth and development of the body This is true of other grains, where similar refining processes are used

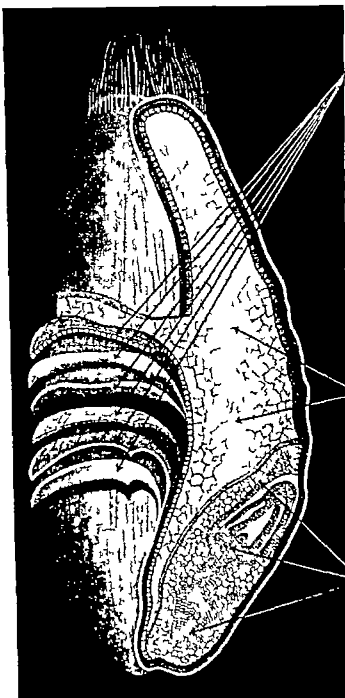
Take the question of polished rice, a food used by millions of people throughout the world Like the wheat, the rice grain is also enclosed in an outer covering containing many of the minerals and vitamins so essential to health Yet these substances are deliberately removed so that the polished rice may be stored for longer periods of time

Polished rice may look attractive, but the results of living on such a diet are often tragic. Through this polishing process, many children are robbed of the vital elements so necessary to a growing child They are starved while trying to grow up on devitalized foods, the best part of the grain having been lost or thrown away

Deficiency diseases are not new to the world They have been with us for many centuries We know this by studying the remains from ancient burial-grounds Malnutrition was all too common years ago, just as it still is in some areas But today there is no excuse for now we know why these deficiency diseases occur and how to prevent them

### *Scurvy—a Deficiency Disease*

Several centuries ago when Europeans first began to take long voyages by sea, many of the sailors would come down with a mysterious



Whole grain of wheat,
showing various layers and wheat germ

**BRAN** the brown outer layers. Rich in
Bulk forming carbohydrates—aid bowel motion.
B-complex vitamins—see GERM
Iron—helps build red blood cells.

**ALEURONE LAYERS** (nearest the endosperm) Rich in
Proteins—build and repair body cells.
Phosphorus— helps build bone and nerve tissues.

**ENDOSPERM** the white centre—only part of the grain used in highly refined cereals and white flours Composed mainly of
Carbohydrates — supply energy
Proteins.

**GERM** the heart of the wheat (embryo) the part which grows when kernel is planted. Contains
Thiamine (Vitamin $B_1$) —essential for appetite, growth, gastro-intestinal tonicity normal functioning of nervous system, etc.
Riboflavin and Niacin—important to growth and good health.
The germ also contains many other elements vital for health.

*Discovering Vitamins*

It was this strange disease, **beriberi,** that led to the actual discovery of vitamins A Dutch scientist, Eijkman, while working in Indonesia, noted that this disease was more prevalent where people were crowded together Other doctors thought it was some type of infection, but this man decided to find out for himself He suspected a deficiency in the diet of the poorer people.

So he took the same polished rice used by the majority of the people and fed it to experimental animals Within a short time all the animals developed a condition similar to that seen among the human population. Then to make doubly sure, he took some of the rice bran, or polishings, and added these to the diet of the experimental animals All the animals quickly recovered There was evidently something in the outer covering of the rice grains that *prevented* beriberi

Doctors all over the world were intensely interested as soon as these remarkable findings were published This opened a whole new concept in the treatment of disease Someone coined the word "vitamin," and doctors soon began to discover other vitamins and their functions in the body From this has developed a clearer understanding of degenerative diseases, such as hardening of the arteries, coronary heart disease, high blood pressure, diabetes and many other maladies related to nutrition

Now if we were all perfectly healthy, and continued to eat the right foods, we would probably remain strong and vigorous all our days. But most of us are not this fortunate. We have all inherited certain weaknesses, and none have *perfect* health We must therefore be doubly certain our diet contains all elements necessary for good health, and these include minerals and vitamins.

*What Is a Vitamin?*

Some will be surprised to learn that a vitamin is *not* a food, although it is usually present in the foods we eat Nor is it a so-called "food supplement." If you ate nothing but vitamins, you would soon starve! Vitamins do not provide energy nor do they build up worn out tissues. Still without vitamins you could not live. Many of the vitamins are needed only in very small amounts say less than a thousandth of a teaspoonful daily yet vitamins play a very important part in most chemical reactions within the body

Many of these cell reactions are carried on through enzymes, each different kind of *enzyme* being responsible for carrying on some particular chemical reaction within the complex body chemistry Enzymes are made up of a combination of vitamins and minerals, all joined together in a highly complex fashion If only one vitamin happens to be missing, that enzyme cannot be formed and some important function of the body cannot be carried out

Where do vitamins come from? First of all, they are built up in plants and they are found in all *fresh* foods However, some vitamins, especially vitamin C, can be destroyed by prolonged cooking Drying or exposure to sun and wind may also do this Other vitamins are not so easily destroyed They will stand cooking and boiling without being changed But many of these vitamins as well as minerals are water soluble and are thrown away when the cooking water is drained off These are things every housewife should understand Instead of pouring these valuable nutrients down the kitchen drain, she should save the water in which the vegetables are cooked and use it in making curries, soups, broth, gravies and in other ways. Then the family will get the full benefit from the meals prepared for them

Vitamins work in various ways, and are often closely related to each other in their reactions within the body Most vitamins do not occur alone They are often found in pairs or groups, so that if one is absent others may also be missing We will briefly sketch the functions and sources of the major vitamins

*Vitamin A*

Vitamin A is the "beauty vitamin. It helps to keep the skin smooth and soft It is also needed for the mucous membranes lining the nose, throat, and bronchial tubes, as well as the entire digestive tract, the bladder, kidneys, and pelvic organs Vitamin A aids in the normal growth of bones and teeth, particularly in children and young people.

It is possible to take too much vitamin A. Some people, who operate on the theory that "if a little is good, more is better," stuff their children with shark liver oil or some other highly concentrated vitamin A until the child is getting 10 to 50 times as much vitamin A as he needs. Then they wonder why his eyebrows are thin, his hair brittle, his skin rough

If one simply sees to it that there is a good intake of green and yellow vegetables and fruits every day, one need not worry about getting too much or too little vitamin A

When vitamin A is lacking, the skin becomes thick and rough, the eyes appear dull and lustreless Infections arise in various parts of the body Kidney and bladder *stones* are more common in people whose diets are deficient in vitamin A. This vitamin helps to fight infectious diseases It keeps our eyes bright and helps us to see in a dim light Without vitamin A our vision would soon be impaired

Vitamin A is formed from a chemical substance known as *carotene,* which is present in all green leafy vegetables, especially coriander and amaranth leaves, and also in carrots, sweet potatoes, squash pumpkins, apricots, papayas, mangoes, avocados (butter fruit), melons and nearly all yellow fruits

Carotene is quickly absorbed by the body and then stored in the liver where it is changed into vitamin A for use whenever it may be needed Any diet containing an abundance of fresh fruits and vegetables will be rich in vitamin A

### *Vitamin B Complex*

The early investigators having found the substance which they called vitamin B, were surprised to discover a whole family of these B vitamins Actually there were more than a dozen of these vitamins, all different and performing a wide variety of functions Most of these B complex vitamins work together for the benefit of the body Because of the close bond between them, they were eventually referred to as the B complex vitamins

Cereals, such as rice wheat, and barley, all contain B complex vitamins, but they are found particularly in the outer covering of the grain This means that polished rice has lost most of these important vitamins. The same is true of white flour from wheat.

### *Vitamin $B_1$ (Thiamine)*

*Thiamine,* or vitamin $B_1$, is one of the most important vitamins required by the body It enters into almost every chemical reaction within the body Without thiamine, the cells cannot utilize oxygen or fuel for energy The nervous system cannot function properly without thiamine, nor can the muscles perform at their best.

When thiamine is absent from the diet, all kinds of *muscle pains* develop over the body The nerves become irritable, and the individual suffers from digestive disturbances, weakness, anæmia, and lack of appetite This is the serious disease called beri beri which has already been discussed on page 59

Many people who complain of being tired and irritable are actually suffering from a lack of thiamine, or vitamin $B_1$ The trouble is almost always due to a poor diet. Changing to a balanced diet may be all that is needed to make them feel strong and well again

*Best sources* of vitamin $B_1$ are whole grain cereals (as in brown bread, flour breakfast foods), wheat germ red rice, unpolished and parboiled rice, rice polishings, brewer's yeast, fresh fruits, eggs, vegetables, dried beans, peas, and lentils Thiamine is *absent* from most refined foods, such as white flour, starch, white sugar, polished rice, and fats Unfortunately vitamin $B_1$ cannot be stored in the body This means it must be included in the diet every day The use of soda in cooking destroys this vitamin and therefore should be avoided Growing children, nursing mothers, and women who are pregnant, all need extra amounts of vitamin $B_1$

### *Riboflavin (Vitamin $B_2$)*

Riboflavin, or vitamin $B_2$, is needed for enzymes that enable the body to use carbohydrates. When riboflavin is absent from the diet, chronic sores develop at the angles of the mouth There may be an abnormal shiny redness of the lips, burning in the eyes, and a purplish discoloration of the tongue.

*Best sources* of vitamin $B_2$ are milk, eggs, peas, beans, pulses, yeast, whole grain products, and green leafy vegetables This vitamin is easily lost or washed out of foods that are cooked with too much water For most healthful cooking, one should use only a little liquid

### *Niacin (Nicotinic Acid)*

Niacin (nicotinic acid) is important for the skin and also for the central nervous system When niacin is absent, the serious condition known as **pellagra** develops The skin becomes rough, and the patient suffers from a gradual loss of strength He may pass through periods of mental depression and so-called 'neurasthenia In the later stages the skin becomes rough, scaly, and dark. There is soreness in the tongue and a burning sensation in the mouth and throat. The patient complains of nervousness, dizziness, insomnia,

and muscular weakness. The extremities become numb, and there may be foul stools As the disease progresses, the patient experiences hallucinations, delirium, and confusion All of these symptoms are also seen in the late stages of chronic alcoholism

Prevention is not difficult. Any well balanced diet is adequate in niacin Such foods as milk, eggs, fruits, ground nuts, fresh green vegetables, and whole grains will usually provide sufficient niacin to maintain good health Pellagra in its milder forms may be treated at home. In severe conditions it is better for the patient to be hospitalized

*Pyridoxine (Vitamin $B_6$)*

Pyridoxine (vitamin $B_6$) is closely related to other parts of the B complex. It is found in yeast, whole grains, rice polishings and bran, all legumes, dhals, pulses, egg yolk, and milk. When it is absent from the diet, young babies may develop convulsions. Adults suffer from extreme nervousness and irritability

*Vitamin $B_{12}$*

*Vitamin $B_{12}$* is very important in the production of red blood cells When it is absent the patient suffers from certain forms of anæmia He may feel pain, *tingling* and *numbness* in the extremities, and there may be partial paralysis. Vitamin $B_{12}$ is valuable in the treatment of tropical sprue and macrocytic anæmia. A well balanced diet, especially if it includes milk, usually provides ample vitamin $B_{12}$ Patients with pernicious anæmia usually do better when the vitamin is given by injection

*Vitamin C (Ascorbic Acid)*

Vitamin C (ascorbic acid) is the great healing vitamin of the body It is particularly needed by those who are suffering from some severe infection or prolonged illness. When vitamin C is absent from the diet, a serious disease known as *scurvy* develops. This disease was more fully described at the beginning of this chapter The bones become painful and tender, and pinpoint hæmorrhages develop under the skin Scurvy is sometimes seen in pregnant women, nursing mothers, and people who live on restricted diets.

Vitamin C is easily destroyed by heat and will not withstand prolonged cooking Baking soda also destroys vitamin C. For this reason, doctors advise against its use. Vitamin C cannot be stored in the body it must be taken in every day Young babies fed on

artificial formulas, such as powdered milk, should be given fresh orange juice each day, as suggested in chapter 22

*Best sources* of vitamin C are oranges, Indian gooseberries (amlas), lemons, limes, guavas, tomatoes, avocados (butter fruit), and other fresh fruits in season. Most vegetables also contain vitamin C—drumstick leaves, tomatoes, and potatoes in particular—but some of this can be lost through cooking

### *Vitamin D*

*Vitamin D* is needed in the development of strong, healthy bones Its chief function is to maintain the right concentration of calcium and phosphorus within the body This is particularly important in babies and young children, whose bones are developing rapidly Vitamin D is often called the "sunshine vitamin," because when the ultraviolet rays of the sun fall on the skin vitamin D is formed

When vitamin D is absent from the diet, or normal sunshine is lacking serious bone deformities occur In children this is the condition known as **rickets** The bones become soft and easily bent. Under the constant pull of the muscles, the joints lose their shape and are no longer able to function as they should In young infants there may be a marked softening of the bones of the skull The head may be flattened on one side The chest is also deformed A complete description of rickets will be found on page 48

Premature infants are more prone to have rickets They must therefore be given adequate amounts of vitamin D The danger is great to darker skinned children who live in cooler climates. Because of the slanting rays of the sun, rickets occur more frequently during the winter months Clouds also prevent the ultraviolet light from coming through Breast fed babies are more likely to develop rickets if the mother is not on a well balanced diet.

*Best sources* of vitamin D are egg yolk, fish liver oil and milk, The human body produces much of its own vitamin D in the summer under the influence of sunlight The natural oils in the skin are changed by the sun's rays, and large quantities of vitamin D are produced In areas where sunshine is lacking the use of ultraviolet radiation will accomplish the same thing Too much of the commercially prepared vitamin D may make a person ill because of overdosage.

### *Vitamin E*

*Vitamin E* has something to do with the reproductive functions of the body It also has some effect upon the muscles, and perhaps even on the heart Many claims concerning the benefits supposed to be derived from vitamin E have been made but the fundamental action of this vitamin is still somewhat obscure Vitamin E is found chiefly in whole-grain cereals, green vegetables, olive oil, coconut oil, and other vegetable oils. Some doctors prescribe vitamin E for certain heart conditions, but others are not convinced of its value. However, there is no harm in its use Any well balanced diet contains sufficient vitamin E to meet the normal needs of the body

### *Vitamin K*

*Vitamin K* is essential in the clotting of the blood When it is absent, prolonged bleeding may occur and severe anæmia may result. Vitamin K seems to have some control over the production of prothrombin within the liver This vitamin is abundant in all green vegetables, and also in soy beans, and tomatoes. Hæmorrhages may occur when this vitamin is missing from the diet Any serious disease of the liver, particularly jaundice, may interfere with the actions of this vitamin Some doctors prescribe vitamin K just prior to surgery, and also advise its use during pregnancy to prevent severe hæmorrhage after birth All well balanced diets provide sufficient vitamin K for normal needs

### *What About Vitamin Pills?*

Many people are concerned over whether their families should be given extra vitamin pills Much depends on the circumstances under which they live When people are healthy and strong, extra vitamins are not needed However, they are valuable when a person is recovering from a severe illness or injury Such decisions are best made by the family physician Most people can get all the vitamins they need by taking a well balanced diet, along with sufficient rest, sunshine and exercise

CHAPTER 9

# CONTROLLING YOUR WEIGHT

Are you one of those who must always worry about your weight? Is it hard for you to maintain a normal figure? Then this chapter is for you

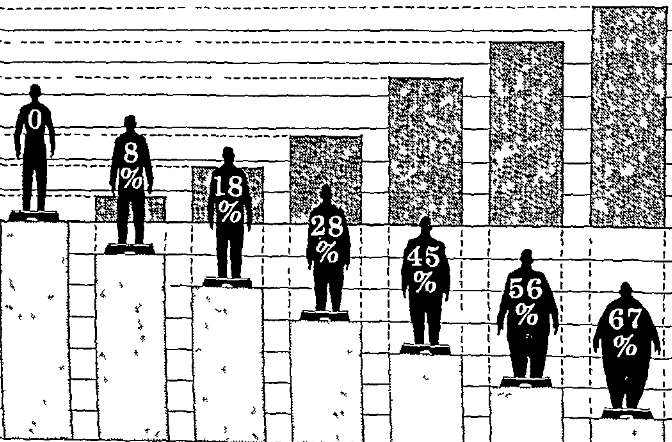
Two thousand five hundred years ago Hippocrates, the father of medicine,' and a very keen observer noted that **"fat men die suddenly!"** This is still true Not in every case, of course, but sudden death occurs so often in fat people that doctors must raise a note of warning Especially is this true in people who are sluggish and steadily gaining weight In other words, ***the longer your waist line the shorter your life line!*** Yes, it is very important to watch your weight, not allowing yourself to become too thin or too fat, but trying to remain near the ideal

Most youngsters in their teens if they are healthy and active, are fairly close to the ideal weight for their size and age Why do so many of them change as they grow older? Usually because they no longer are as active as they were

Changes often come on in the late twenties, reducing a person's physical fitness Sluggish habits begin to develop as the individual loses his skill in running, swimming, or other healthy activities Yet in spite of warnings from nature, they continue to eat heartily, adding many unnecessary pounds, and finally losing their athletic figure What a pity to change that youthful silhouette for a flabby, paunchy, unattractive appearance!

### *Dangers of Overweight*

"But," you say, "aren't most plump people rather jolly and good natured? Yes, that is quite true They are usually pleasant and easy to get along with but they are still overweight Most of them give all manner of excuses for their fatness. But in almost every case the only reason is that they are eating more than they themselves really need In other words, ***extra weight*** is due to ***extra eating***


DEATH RATE INCREASED
67%
56%
45%
28%
18%
8%
NORMAL
WEIGHT EXCESS
+10
+20
+30
+40
+50
+60
0
8 %
18 %
28 %
45 %
56 %
67 %

It is surprising what just a few extra calories a day more than are actually needed will do to a fine, youthful looking appearance For instance, if you take just one extra slice of bread a day above your actual needs and continue this for five years, you will add 45 pounds to your figure! In ten years you will have gained 90 pounds But the trouble doesn t stop there, not by any means

All this extra fat puts a strain on your heart, kidneys, and liver, and also on the large weight bearing joints, such as the hips, knees, and ankles This means your body is wearing out more rapidly, carrying around all this extra weight Those excess calories in your diet can be deadly You are shortening your life at your own dining table

*Your Ideal Weight*

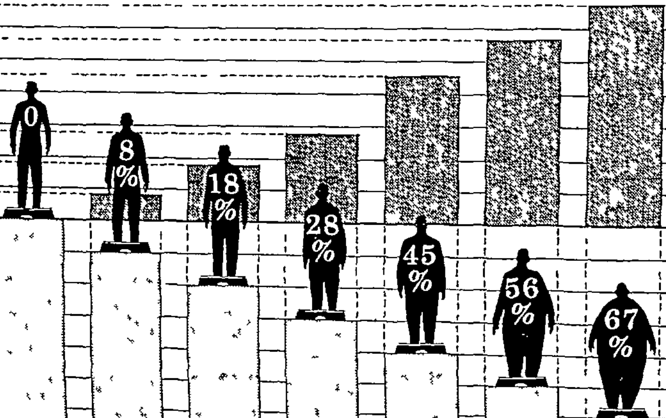
What is your ideal weight? That depends on your height, sex, age, and type of body build There are different standards for men and women, and for people with large, medium, or small frames You can easily find out how much you should weigh by looking at the weight tables in the appendix at the back of this book.

People with large bones and well developed muscles may seem somewhat overweight compared with those of lighter build But actually the lighter person may be carrying around more fat His muscles may be weak and underdeveloped. One must therefore judge carefully and compare his own weight with the standard for his age and body build Even then one can allow for a few pounds one way or the other and still be fairly close to normal

*Why Some Folks Are Fat*

Now let us suppose you know you are about 30 pounds over weight What should you do? First of all try to find out why you weigh so much more than you should Don t be shocked to learn that some people are overweight because they are worried and frustrated To soothe themselves they nibble a little here and there between meals Munching adds weight rapidly

But, someone says, "I don t eat as much as my sister Just look how thin she is Perhaps so People vary a lot in how many calories they actually burn up Perhaps the thyroid has something to do with this at least in some cases.



DEATH RATE INCREASED
67%
56%
45%
28%
18%
8%
NORMAL
WEIGHT EXCESS
+10
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+30
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0
8 %
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"But, someone says, "I don t eat as much as my sister Just look how thin she is Perhaps so People vary a lot in how many calories they actually burn up Perhaps the thyroid has something to do with this at least in some cases.

Regardless of all this, if a person is gaining weight, it means only one thing—he is taking in more calories than he is using Nature hates to waste good food So instead of tossing out those extra calories, she stores them neatly away in the form of fat for future use How easy it is for most of us to put on a few pounds, but what a job to take them off again!

Just how many calories do you need per day? That depends on a number of things such as the kind of work you are doing, your age your body build, and how active you are. A hard working labourer may require 5,000 calories a day To keep going he should need only 2,000 calories a day His wife, who is busy around the house all day, may need 2 500 calories But an office secretary may do well on 1,800 calories a day

It all depends on how active we are At 25 years of age we usually burn up our calories without any difficulty At 35 the situation begins to change We are now less active We sit down more often, and perhaps use labour saving devices to spare us further exertion This means we must gauge the amount of food according to the work we do, and not what someone else may be doing

Are there other conditions that affect a person s weight? Yes, definitely One may gain weight because of water accumulating in the tissues under the skin For instance, a failing heart may produce marked swellings in the legs and other parts of the body So will certain kidney diseases Such people must avoid the excessive use of salt. But this is not the usual reason why most people are overweight Overeating is more likely to be the real problem How can we change the picture? Two ways Either we must increase the output of work, or we must reduce the food intake.

### *How to Lose Weight Sensibly*

Dieting is not new to most people who are overweight. They have all tried this many times before Some are so incensed at what their friends are saying about them that they will go without food entirely for a short time, only to return again to their former habits of overeating Going to extremes rarely does any permanent good. The only solution is a completely new pattern of living, such as these simple steps outlined here

1 **Take smaller quantities of food** Continue with a balanced diet Quality, not quantity, is the rule. Be sure to include reasonable

amounts of potatoes and whole grain cereals in your diet Eating slowly will help Avoid all foods that are oily or high in fat

2 **Be careful about "left overs."** Many housewives put on weight because they hate to see food wasted Far better to prepare less food and avoid the problem of "left overs

3 **Stop nibbling between meals** Train yourself to get along on less food Soon you will enjoy living on a reduced diet, and you will be surprised at how well you feel

4 **Sensible exercise,** taken every day, will help to use up those extra calories The best exercise is walking Putting those large leg muscles to work will burn up unwanted calories

5 **Avoid rich desserts** All that excess sugar and fat is high in calories but low in food value Your best "exercise" is to *push yourself away from the table* while you are still hungry! Stay clear of ice-cream, pastry, rich cakes, and sweets

6 Remember, **regular eating** is important Your meals should be smaller than average, well prepared and attractively arranged on the table There is no reason for you not to enjoy your meals, even though you are now taking less food than you once thought you needed

7 **Do not go hungry for long** Eating regularly but sparingly is the best way to lose weight

8 **Be sure to have a good breakfast.** This will carry you through the day, and you will be less tempted to nibble sweets and snacks between meals

9 **Use these foods freely**—green leafy vegetables, tomatoes, and carrots They are all low in calories, but high in vitamins and minerals and have real food value Such things can also be used to ward off hunger pains between meals, if you must have something

*Value of Losing Weight*

All this may sound like a strenuous programme, but it has many real advantages Overweight people tend to suffer from serious conditions such as high blood pressure, shortness of breath, sleeplessness, heart trouble, kidney disease, diabetes, and disorders of the liver Bringing the weight down to normal will help the heart and every other organ in the body It takes real will power to lose weight, but it is certainly worth while.

One final word—once you have reached your ideal weight, make sure you stay there! You must maintain this new way of life not only for the next year, but for the rest of your days. Tough? Perhaps But once you have accepted this wonderful new way of living, you will find yourself enjoying your meals more Your appetite will be keen with new appreciation of food flavours you never knew before All this adds up to better health and greater satisfaction in living Certainly it pays to control your weight

### *WATCH FOR THOSE HIGH CALORIES!*

| | | |
|---|---|---|
| Cashew nut (per 100 gm of edible portion) | 596 | calories |
| Coconut, dry " ' | 661 | " |
| Cake, chocolate, 2 layer with icing | 400 | ' |
| Butter (per 100 gm of edible portion) | 729 | " |
| Ghee, fresh ' | 818 | " |
| Vegetable cooking oil | 900 | " |
| Ice-cream, vanilla ¼ pint | 150 | |

### *LOW CALORIE FOODS*

| | | |
|---|---|---|
| Milk, cow's (per 100 gm of edible portion) | 67 | calories |
| Curds ' | 46 | |
| Buttermilk ' | 15 | ' |
| Orange ' | 53 | |
| Banana " | 100 | |
| Leafy vegetables | 13–90 | |

#### *Suggestions for Gaining Weight*

If you are slender and only a little under the normal weight you have certain advantages in health It would probably be wise for you to stay that way for thin people often live longer, provided they are not suffering from some wasting disease such as tuberculosis. But if you are very much underweight, you ought to at least have a complete medical examination to be sure there is nothing seriously wrong inside.

There are two main types of thin people. One type is wiry and energetic, like a greyhound Such people are seldom sick They eat heartily, but never put on any weight Because of their constant activity, they probably burn up their energy Most of them would

like to put on a little weight just for the sake of appearance. Maybe they could, if they would stay still long enough!

The other group of thin people are not wiry and energetic They lack energy and drive Most of them tire easily and often wonder what is wrong with them They always envy those who can eat heartily but usually find their own digestive organs unable to handle even normal meals. Rich foods usually make them feel sick Rarely able to finish their meals, they just take a few bites and then feel full

What is wrong with this group? Some of them probably have small stomachs with low capacity Such people could help themselves by taking smaller meals and eating more frequently A few may improve their diet by taking drinks and fruit juices between meals They should always choose plain foods, for rich meals usually disagree with them

All such people should have a complete X ray of the digestive organs to rule out the possibility of some hidden disease A stool examination would also be advisable to rule out the possibility of worms, some amœbic infection, and other harmful parasites A complete blood count is recommended to be sure there is no anæmia The urine should also be carefully checked to eliminate any infection in the kidneys or bladder

Nervous anxiety is another cause of anorexia or lack of appetite. The child who feels rejected may suffer from a chronic type of anxiety in which he never seems to have a normal appetite Eventually he may begin to show the effects of malnutrition Just placing him in a more favourable environment will usually improve his appetite almost immediately Remember, nagging and criticism will not help but may only deepen the child s emotional problem A few multi vitamin tablets may help to increase the appetite and return the body s functions to normal

**Treatment** Avoid taking snacks just before meals for this often spoils the appetite Eat a well balanced meal, keeping on a high-calorie diet as much as possible Avoid the use of tobacco, particularly just before meals

Above all learn to relax. This will help reduce nervous tension while bringing the body s activities back to normal Many thin people are completely exhausted because of nervous strain Most of them are too conscientious often worrying over situations they cannot hope to change Some are just 'tied up in knots,' so that their digestive organs cannot carry out their normal functions

A quiet rest just before the evening meal and also before lunch may be all that is needed to bring back life and vitality to the whole body Try *cutting down on all those extra activities, for this* too will help to reduce tension Such a programme, combined with restful sleep at night and sufficient exercise in the fresh air every day, is an excellent prescription for good health Try it!

*Suggestions for Growing Taller*

Every normal child longs to be "grown up' He wants to do all the things he sees grown up people doing around him If he is not as tall as others, it is easy for him to feel slighted and perhaps some what rejected by those of his own group Can anything be done to help a shorter person put on an inch or two? Yes, in some cases this is true.

Normal growth is an amazing process From the moment of conception until the day we are born, growth is extremely rapid. After birth we continue to grow rapidly for the first two years, then the process begins to slow down Once again, around our 13th or 14th year we begin growing rapidly *This is the time known as adolescence*

Girls grow more rapidly than boys because their hormones are more active in early puberty Later the boys catch up and overtake them, usually reaching their full height between the 16th and 19th years However, there are wide variations, depending upon certain important chemicals within the body

A person s height depends to a large extent on the length of the long bones in his lower extremities particularly the femur in the thigh and the tibia in the leg For good stature, the spinal bones or vertebræ must also be well developed in proportion to these long bones

Near the ends of the bones there is a transverse area known as the *epiphysal line,* consisting mainly of cartilage in which the young bone cells are growing During childhood and youth these young bone cells are continually adding to the length of the bones This is how we gain in height and weight

However, *growth is not steady throughout childhood* It seems to come in a series of starting and stopping depending on changes in the endocrine organs. Thus one child of nine may appear short for his age, only to catch up and pass the others by the time he is

twelve. A similar variation in growth continues throughout adolescence, and in most cases seems to be governed by hereditary tendencies and other factors still not clearly understood But once the epiphysial lines have closed, there is no further growth in height The bones may grow heavier, wider, thicker, but from then on it is doubtful if the individual can do anything more about his height

**Hormone changes,** particularly those involving the thyroid gland may often alter a person s height In hypothyroidism there is delay in growth and development, along with some mental slowness, fatigue, and also menstrual disorders Thyroid tablets, when taken regularly, may help to correct the deficiency and actually cause the individual to gain in height and weight, provided the epiphysial lines in the long bones have not already closed The usual dose is 1½ grains or 90 mg of thyroid extract per day In addition it is important to take sufficient protein in the diet.

Racial characteristics must also be borne in mind before reaching the conclusion that one is too tall or too short Hereditary factors always play a large part in body development. If one's ancestors are short and stocky, he can scarcely expect to be tall and slim

Growth failure in children may be due to other factors. The child s diet may be lacking in essential nutrients, such as vitamins, minerals, or protein In many cases the total intake of calories may be inadequate to support normal growth Again, certain diseases involving such organs as the liver, kidneys, pancreas, heart, or lungs may all contribute to a failure of normal growth Food may not be properly absorbed and utilized by the body Congenital heart disease must also be considered when growth is subnormal in childhood and youth

Then there is the very delicate balance between the various secretions of the endocrine glands As stated on page 538, the growth hormone from the anterior pituitary may be lacking in some people, probably because of disease. A deficiency of this hormone (STH) can result in pituitary dwarfism As stated above, thyroid deficiency may result in cretinism and hypogonadism, both of which retard normal growth Ultimate stature then depends on both the rate and duration of growth One might ask, Why not give certain endocrine substances, such as male hormone? This may help in some cases, but it may also close the epiphysial lines that much more quickly, thus shortening the duration of growth

Any young person who is not growing as rapidly as expected should always be carefully studied to find the possible cause of growth failure. Parents should realize that any sudden slowing in growth rate may indicate the beginning of some serious disease X rays may reveal the presence of rickets or some serious vitamin deficiency If the patient is suffering from malnutrition, the addition of vitamin B supplements may help stimulate the appetite and establish a new pattern of growth

***Pituitary dwarfism*** *results from a failure of the anterior lobe* of the pituitary gland This may be due to some congenital condition or perhaps a tumour invading the pituitary Pituitary dwarfs, unlike cretins, usually *have normal intelligence The body is well propor* tioned, but all the features are diminutive, and many of the physical manifestations of childhood are retained throughout life.

**Treatment** Once the correct diagnosis has been made, most doctors prescribe thyroid, 1 to 2 grains per day Boys are also given methyltestosterone, sublingual tablets 5 mg twice daily Both of these substances increase the size and weight of the skeleton Girls with this condition are given estrogenic substances, such as diethylstilbesterol 0.5 mg tablet each day for three weeks, followed by a rest period of 8 days. This cycle is then repeated as long as needed for growth. A diet rich in proteins and minerals is of value, even though full stature is not usually attained If a tumour is present in the pituitary, X ray therapy or surgical removal is the treatment of choice

CHAPTER 10

# NURSING A PATIENT AT HOME

Have you ever felt utterly helpless because you did not know what to do when someone in your home was ill? How you wished you could help! Perhaps you have never had an opportunity to know anything about caring for a patient Or maybe you have been afraid you might do the wrong thing There is no reason to feel this way Any normally intelligent person can learn the simple rules of home nursing in a short time.

Sickness and accidents are only too common wherever we are. Serious emergencies may turn your own home into a temporary hospital at any time. Or it may be a case of minor illness such as influenza Are you prepared to meet such exigencies? If not, this is a good time to begin

### *Principles to Keep in Mind*

Do not allow yourself to become confused Do what has to be done in an ordinary manner, without undue fuss or haste. Wise planning will save considerable time in the end If necessary, call on another member of the family to help you But remember, only *one* person must be in charge of all the sick care given in the home. That person may be you This is the time for you to show your good organizing ability You must be prepared to carry out your duties in a sensible manner under the direction of your doctor

### *Arranging the Patient's Room*

The arrangement of the patient s room will make a great deal of difference to his comfort and well being Remember, this will be his little world while he is sick. Therefore, be sure to make it cheerful and attractive at all times The room should be bright and airy in the daytime, but the patient s eyes should always be shielded from glare A *quiet* atmosphere is important when one is recovering from

any illness Avoid anything that causes irritation to the one who is sick Privacy may help him make a more rapid recovery

Be sure the room is well ventilated during the warmer times of the day Doors and windows should be screened to keep out flies and other pests If the patient s bed is a long way from the bathroom, it may be wise to move him to some room nearer the toilet facilities. This will make the nursing care that much easier, and it will be more convenient for him when he is able to get up and care for himself Be sure he has plenty of fresh air, but do not let him become chilled by cold draughts which could delay recovery

To make nursing care more easy and convenient, the bed should stand at just the right height Modern beds are usually made low for the sake of appearance, but this often makes nursing care more difficult In such cases you might consider renting a hospital bed. If that is not possible, try to raise the bed to the proper height by placing wooden blocks under each leg Bore a shallow hole in the top of the block (as shown in the drawing) so the castor will fit into it firmly Be sure the bed is perfectly steady Elderly and nervous patients need to feel secure, even in bed

### *Furniture You Will Need*

A suitable *bedside table* is convenient for the patient, allowing him to do things for himself Place a *small lounge chair* beside the bed for visitors Such a chair may also be used by the patient when he is allowed out of bed

*Reading lamps* should be well shaded to avoid glare and prevent eyestrain Patients should not have to face a bright window, for this may bring on a headache Draw the curtains during the hottest times of the day, but throw them open during the evening, especially in warmer weather It is well to provide the patient with some type of *call bell* A spoon and an empty glass may serve quite well for some short illness. A small *radio* also helps to pass time more quickly

If the furniture has polished surfaces, protect them from staining and marking Even plain water may spoil a highly finished table top Rubbing alcohol may do even more damage. Most liquid medicines contain small quantities of alcohol and other solvents Use *waterproof plastic* material for protecting surfaces.

*Little Things Mean a Lot*

Keep the room clean and tidy at all times Remember, little things often tend to annoy a sick person An orderly room will help him to feel better and may aid in his recovery Be sure the room is cleaned every day Raising a lot of dust may interfere with the patient s breathing Use a mop, and avoid unnecessary bustle and noise

Don t fuss over the patient If he wishes to talk, encourage him to do so Don t be surprised if some patient seeks relief in tears occa ionally This is perfectly normal during certain illnesses Let the atient give vent to his feelings This often helps relieve nervous ension

If he seems depressed, talk about something cheerful This will ift him up from discouragement Avoid all morbid, discouraging houghts as much as possible A cheerful spirit will ease the pain nd relieve his discomfort

*Avoid Confusion*

There is no greater test of your natural ability than when you are caring for a sick loved one The more carefully you plan your work, the easier it will be. *Do not become careless* Always put things away in their right places where you can find them when they are needed again By all means avoid confusion not only in the patient s room, but also in your own mind A well planned programme will enable you to accomplish far more than you may now realize

In more serious cases of illness, the doctor will explain what must be done. You will soon find you can carry out most of these simple procedures, such as giving medicines at the right time and in the correct amounts Try to keep some kind of record showing the patient's temperature, pulse, respiration, and medicines he has had, and whether he is feeling better or not Do this two or three times a day according to the type of illness, and as suggested by the doctor

Bed linen should be changed frequently and so should the patient s sleeping gown, especially if he has a fever and is perspiring a lot. Keep all insects and vermin out of the room as much as possible. Various types of spray can be used for this purpose. Remember, insects may bring germs to the patient, or perhaps carry germs to other people A clean, well-ordered room will attract fewer insects.

### *Making Your Own Equipment*

Proper equipment is always necessary to good nursing care, but this can be rather expensive. If you cannot afford to buy these things, here are a few suggestions on how to make your own equipment

1 *Patient's dresser* This can easily be made by using a few small boxes. Stand these on end and nail several boards across the top of them Drape some light material over the front of the boxes Shelves inside the boxes can be added for storing articles needed in caring for the patient

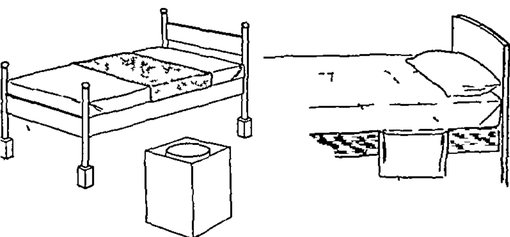
2 *Bedside table* Select a large box or paper carton. Cover it with suitable coloured paper or other material that will look attractive and place it beside the bed

3 *Bed table* This is very useful at mealtimes, and also when the patient can sit up and care for himself You might secure an old card table. Saw the legs off, so that it will stand about one foot high. This table can then be placed across the bed to hold the patient's tray while he is eating If you do not have a card table, try making a suitable bed table from a large carton Cut out parts of three sides so that it forms a table about twelve inches high This can then be placed on the bed above the patient's knees to hold his tray Another simple method is to stretch an ironing board, or a leaf from a dining table, across chairs placed on either side of the bed. This will serve well for a short illness

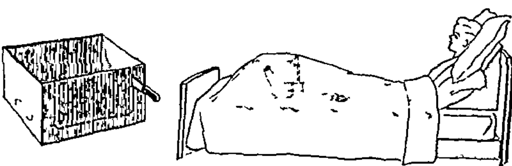
4 *Wedge shaped cushions* are very useful in propping a patient up in bed These are available in most areas today Another method is to cut a large cardboard carton diagonally across placing this behind the patient for support. See page 82

5 *Handy paper bag* Waste materials, such as tissue handkerchiefs and cleansing tissues, are often a problem to the patient. Pin a medium-sized paper bag in a handy place beside the bed, where he can dispose of these tissues easily, without contaminating himself or the bed

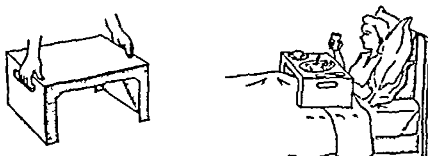
Other simple methods will no doubt come to mind as you care for a sick person at home You will soon find ways of solving most of your problems by using the furniture and materials you have around the house. Remember, it s not so much the type of equipment you have as the kind of person *you* are that really counts in caring for someone who is ill If you are kind and understanding you will



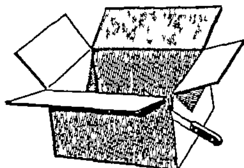
Such things as raising the bed on blocks and providing waste containers, help the patient and those ministering to him.

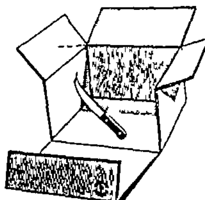


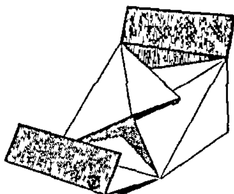
A cardboard container, cut as shown makes a convenient foot guard.

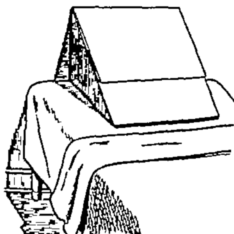


The same box may be used as a handy bed table.









become a good "nurse,' with all the satisfaction of helping another back to health

*Making a Comfortable Bed*

A sick person s bed is his small island while he is ill Careful thought must be given to keeping him comfortable. Most hospital beds are firm giving good support to the patient s back. Beds at home are often soft and may sag in the middle, thus giving little or no support to the back Soft beds are not good for any patient who must spend days or weeks recovering from some prolonged illness

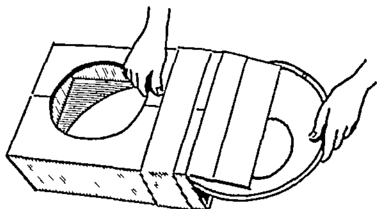
So, be sure the patient s bed is comfortable and firm Take a good look at the springs. If they are weak and tend to sag in places, put a sheet of plywood or a wide board *between* the springs and the

mattress under the area where the patient lies most of the time. This board should be at least four feet long and two feet wide to give proper support to the patient's back. If the mattress is lumpy, have it renovated, or else secure another. Hair mattresses and foam rubber mattresses are better for a patient who must remain in bed for a long time. But be sure to *protect the mattress* with some type of cover which can be easily laundered.

Bed sheets should be large enough to be tucked in on all sides. However, be sure the patient's feet are not bound down under the upper sheet. This may cause pain and trouble in the feet and legs. Put a small box or a roll of blanket between the patient's feet and the foot of the bed. This will give him something to push his feet against. At the same time it will hold the sheet away from his toes.

Blankets for the sick room should be light for easy laundering. Those made of part wool and part cotton are best for this purpose. It is a good plan to secure a strip of *rubber sheeting* about a yard wide and two yards long to protect the mattress. Lay the rubber sheet *across* the middle of the bed and then cover this with a *draw-sheet,* which is an ordinary sheet folded double, and laid crosswise across the middle of the bed. The draw sheet adds to the patient's comfort, and makes it easier to keep the rest of the bed smooth and clean.

Change the patient's position at least every hour—more frequently if the doctor so advises. This helps to prevent bedsores developing on the patient's back because of too much pressure over



A convenient commode may be made by preparing a carton as illustrated

long periods of time. Apply *rubbing* alcohol to the back and legs at least twice each day This increases the circulation to these areas and cleanses the skin. But be careful how you do this, for the skin may be tender and easily broken In rubbing the patient's back and limbs, use long, even strokes, applied lightly to all areas.

*Helping Himself*

The patient should be encouraged to help himself as much as possible By placing his feet firmly on the mattress, he can often help to lift his own weight You might attach a small overhead bar (or trapeze) above the bed Even a rope attached to a hook in the wall will serve the purpose of giving him something to grip to help himself more easily

*Cleansing the mouth* is most important during an illness. As much as possible, let the patient do this for himself If he cannot brush his own teeth, you may have to help him Proper oral cleanliness is essential in patients suffering from a stroke or a heart attack If the tongue is badly coated use a mixture of glycerin and lemon juice to cleanse the mouth and tongue This should be done after each meal.

*Bathing the Patient*

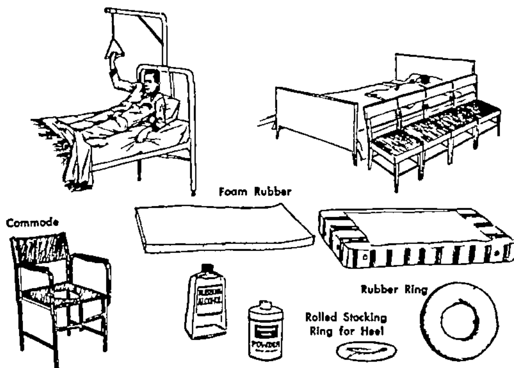
Every morning unless the doctor orders otherwise, thoroughly wash the patient all over This will improve the circulation and help him to feel better It will also remove any secretions that may have accumulated on the skin during the night

To bathe the bed patient one needs

1 A basin of comfortably warm water
2 Soap
3 A wash-cloth or washing mitten
4 A towel, preferably of the Turkish or terry cloth type

If you are right handed, stand at the patient s right side Place the basin of water and the soap on a small table or a chair just to your right Take the towel and spread it under the part you are about to wash, to catch any drops of water that may escape from your wash-cloth

Now you may begin by bathing first the face, ears, and neck. Then do the arms, chest, hands, abdomen, back, legs thighs, and finally the genital areas Change the water several times during the bath Wash each part thoroughly and then dry with the towel Keep the




There are many ways in which the life of the patient may be made easier

rest of the patient s body covered as much as possible, lest he become chilled After bathing apply a little plain talcum powder to all parts of the skin This will prevent irritation and give a pleasant, refreshing feeling all over

Brush and comb the patient s hair each morning Note the condition of the scalp and perhaps apply some commercial hair tonic to give a feeling of freshness Let a male patient shave himself, if at all possible

Appearance means so much especially to a lady patient Encourage her by providing an attractive bed jacket Let her wear a ribbon or a pretty flower in her hair When you have finished perhaps you can turn on some suitable music on the radio This will make your own work lighter, and the patient will be happier and more content

## *Taking the Temperature*

A slight elevation of the temperature (or fever) could be the first indication of trouble arising from infection or injury some-



**A bath improves the patient's circulation, and helps him to feel better.**

where in the body Fever is often the body's cry for help—a distress signal that must not be ignored To check the temperature one must have a clinical thermometer This little glass tube has a silver bulb at one end, containing a silvery metal called mercury, which is liquid at ordinary room temperatures. The normal temperature is 98 6° F, but may be slightly higher in some people and lower in others.

To take the patient's temperature, hold the thermometer firmly at the upper end, away from the silver bulb Shake the thermometer vigorously up and down until the little column of mercury drops to about 92 degrees Now place the bulb of the thermometer *under* the patient's tongue Close his mouth gently and leave the thermometer there for *at least three minutes* Now take it out and slowly rotate the thermometer between the tips of your fingers. If you watch carefully, you will see that the column of mercury has moved up the tube to some point, perhaps to 100° or more. Always write down the temperature and the time at which you have taken it. This will be useful to the doctor when he comes to see the patient

*Pulse*

Now you must learn how to take the pulse. Gently lay the tips of your fingers along the edge of the patient's wrist near the thumb Press just firmly enough to feel the bounding pulse under the tips of your fingers Note the quality of the pulse, whether it is regular or irregular, and also whether it feels weak or strong All of this is important to the doctor If you have a watch with a second hand, count the pulse for one full minute and write this down The normal pulse of an adult should be somewhere between 70 and 90 per minute. However, in a fever, it may go up to 120 or more The pulse of young children may be over 100 and still be normal

*Respiration*

After counting the pulse, quietly notice how often the patient breathes You can do this by watching the chest as it expands Count



While bathing the patient, keep the rest of the body covered as much as possible.



**Take a patient's pulse with the finger tips, not with the thumb.**

this for one full minute and write down the results The normal rate of breathing is between 15 to 20 a minute

If the patient is getting short of breath, prop him up in bed, using several pillows If he is nervous, and if his breathing is irregular, you should notify the doctor at once Rapid breathing may indicate some real crisis, such as a failing heart On the other hand, a shallow sighing type of breathing may be due to depression or perhaps to some hidden anxiety

### *Handling a Sick Child*

Nursing a sick child often requires more skill and understanding than caring for an adult. The mind of a child works differently He has no experience to guide him Childhood illnesses are usually dramatic, and in most cases there is a high fever with vomiting and pain A sick child is naturally afraid even if you have told him he will be well again in a few days.

Every child has a highly active imagination, which becomes even more sensitive when he is sick. You must be careful not to increase his fears. Children have heard adults tell tales about illness and death, including all the harrowing details. This sort of exaggeration is always to the detriment of the child. Then when he becomes ill, and his imagination is already working overtime, he may be almost scared to death. Therefore, try to keep him calm and quiet.

Fortunately, nature is kind to young children. Most of their illnesses last only a few days at most. One minute they seem half dead. The next thing you know they are up and running around as if nothing had happened. Except in certain crippling diseases such as rheumatic fever, they rarely have to stay in bed for long.

Young children often come down with a high fever. The trouble may be due to some infection in the ear, nose, or throat. Unless properly treated, even a cold may result in some really serious complication, such as severe tonsillitis, Bright's disease of the kidney, chronic bronchitis, or even deafness due to an infection of the middle ear. Be sure to call the doctor *early* in the day. Don't wait till midnight, merely hoping for the best. Remember, the earlier the doctor is called, the better for the child and also for yourself. A young child does not have the reserve energies of an adult. He can go downhill very rapidly with certain types of infection. Don't take a chance. Call the doctor early.

## *Don't Scare the Child*

Meanwhile, don't scare the child with foolish threats. Build up his confidence by telling him the truth. Perhaps the doctor will have to give him an injection. If so, be sure to set a good example yourself. Don't cringe when the doctor opens his bag. The child may be watching to see how you react in this emergency. If you are calm and cheerful, he will try to follow your example.

All children like to be considered as heroes. Don't pamper your child when he is sick. If he has to have an injection, tell him it will hurt a little, but that he will soon be better. Help him to act like a grown up.

Do not make a simple illness seem too important. If your child gets too much attention he may prefer to remain sick! Try to be sensible in your own attitude. Give him reason to be confident in you and also in the doctor.

*Should He Have Visitors?*

Be careful about visitors, especially when a child is sick. Even close friends and relatives should only be allowed in the room a few minutes at a time. Do *not* allow strangers to see a sick child. They usually talk too much and are easily misunderstood by him. He will recover faster without a lot of visitors.

All children love flowers and growing plants. You can help him to see the beauties of nature, and the time will pass more easily. Point out how the buds gradually open out into lovely flowers. He will thus be learning even while he is sick. A few simple pictures of animals and nature scenes will appeal to a child's mind. Change them frequently, for children quickly tire of seeing the same thing. Help the child to enjoy these things, but don't spoil him. Speak calmly and quietly in his presence. Talk about cheerful things and avoid all morbid discussions.

If the child seems afraid, encourage him to talk and express his fears. Listen quietly to what he says, for it is very important for you to know what he is really thinking. Just the mere fact of bringing his fears out into the open will help him to see how foolish most of them actually are. Never make fun of him.

*Do not whisper* in the presence of a sick child. Remember he is already afraid and your whispering will only increase his fears. He may begin to wonder if he is going to die. If you have to hold a discussion, do so in another room. Then return to him as quickly as you can, bringing some little present that he will appreciate. This may save you having to explain what you have been talking about.

*Reading* is beneficial. All children love stories as soon as they are old enough to understand ordinary conversation. Your child will appreciate hearing your own voice far more than programmes on the radio, although these are very useful at times. The young child's mind should be allowed to dwell on good stories that are true to life. Such stories should have cheerful endings, and should be easy for a child of his age to understand. He may want to hear some favourite story over and over again. If it is of the right kind, it will help him to understand more about life.

CHAPTER 11

# TREATMENTS YOU CAN GIVE

Water is one of nature's great healers In the treatment of disease, water has been used since the dawn of history *Hydrotherapy* is the scientific term for treatments in which water is used *Hydro* means water, *therapy* means treatment However, it is most important to realize that though hydrotherapy is very valuable, it is no substitute for good medical care Make no mistake about this. In any serious illness you must rely on your doctor Under his guidance you can do much to help someone who is ill with a cold or an attack of influenza.

Water is a very adaptable substance. At low temperatures it turns to ice. At normal room temperatures it is a liquid When heated it readily turns to steam All of these changes have a marked effect upon the body, and water can be used to great advantage in each form Ice is very useful in treating acute swellings of the tissues, especially following some injury such as a badly sprained ankle On the other hand, hot water, or heat in any form, increases the blood flow to the affected area Even steam is very useful in relieving congestion Here are a few treatments commonly used today

### *Medicated Steam Inhalation*

This is an excellent form of treatment for a *head cold* All you need is a kettle with a spout Fill the vessel half full of water Add a little oil of eucalyptus or compound tincture of benzoin or some Vick's VapoRub or similar medication These simple medicine help to open the windpipes and relieve the congestion The steam itself, however, is always the most important part of the treatment.

Now open an umbrella and place it behind the patient s head, as shown in the picture. Throw a sheet over the umbrella to provide a tent, and use a stove or some other means for keeping the water hot. If the water is already hot, you will only need very low heat. Make sure the steam comes up through the spout of the kettle freely Form

a paper or cardboard tube to carry the steam up under the tent. Next, soak a small piece of gauze in eucalyptus or other medication, and lay the gauze over the top of the newspaper cone or tube.

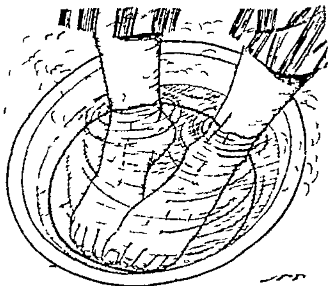
Allow the steam to pass up the tube and under the tent for about twenty to thirty minutes This medicated steam inhalation is very useful in treating head colds, sinus trouble, bronchitis, croup, and pneumonia Be careful in treating a young child Always have an adult stay close by to prevent any accidents Do not allow the patient to become burned or chilled during this procedure.

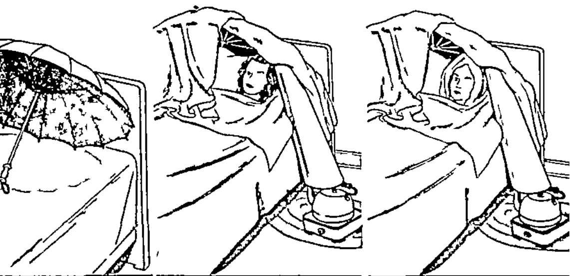
### *Emergency Treatment for Croup*

If your child has a sudden attack of croup in the middle of the night, try to have him breathe steam in some form without delay Steam inhalation as described above is satisfactory Be sure to call the doctor as soon as possible. Meanwhile, keep yourself calm and quiet and avoid any sign of panic Otherwise, the child might share your fright and thus find it still harder to breathe normally

### *Hot Foot Bath*

Another useful water treatment is the hot foot bath This helps relieve congestion in the nose and sinuses, and aids those who suffer from cold feet It is also valuable in relieving nervous tension. Not





**Steam inhalations under an umbrella tent are excellent for head colds.**

only is it effective in easing head colds and tension headaches, but it is also an excellent way of relieving pelvic cramps, and is certainly better than using pain killing drugs

The foot tub should be half filled with warm water, several degrees above ordinary body heat. Test the temperature with your hand If too cool, add more warm water, but always be careful not to burn the skin Keep the patient warm during this treatment Wrap a blanket around him and apply a cold compress to the head

### *Hot Water Bottle*

In these modern days it may seem strange to mention this old fashioned method of applying specialized heat to certain areas of the body Yet the hot water bottle is still very useful and inexpensive

Fill the bottle only half full using water just hot enough to be comfortable, but not too hot Before replacing the stopper, lay the hot water bag on the table, holding the neck upward and allowing the steam to escape When the bag feels fairly flat, screw the stopper tightly in place while still holding the end up Then dry the rubber part of the bag and wrap a cloth cover around it.

Never use a hot water bottle without a cover, as this may burn the skin As the bag cools empty it and fill again with hot water When



The heating compress, described on page 95, is an excellent way to cure a sore throat.

the treatment is completed, be sure to empty the bag and allow it to dry Hang it upside down, open and ready to use again when needed This simple treatment is beneficial in cases of shock, but be especially careful not to burn the unconscious or partially paralysed patient

*Heating Compress*

This is an excellent means of treating a **sore throat** It is often more effective than expensive medications. First, select a piece of cloth, such as a large handkerchief Fold it about three inches wide and twelve to fifteen inches long Dip this in *cold* water and wring it out as dry as possible. Wrap this around the patient s neck and cover it with several thicknesses of flannel or woollen material about four inches wide Fasten the compress in place with safety pins and leave it on all night Within a few minutes the compress will feel warm



In preparing a fomentation soak a towel in hot water

1



Hold dry ends of towel to avoid scalding your hands.

2

and will have a soothing effect on the throat This compress should be changed every eight hours

The heating compress is very useful in treating *hoarseness or laryngitis*, and also in relieving stiffness in the neck muscles following an injury Many cases of acute tonsillitis have been successfully treated by this simple means. Be sure the compress is neither *too tight nor* too loose. Continue this simple treatment for several nights in succession, and you will be surprised at the relief it will bring

### *Hot Packs and Fomentations*

Hot packs and fomentations are useful in treating local pains and muscle injuries in the arms, legs and back They are also of value in

treating chest colds, influenza, croup, bronchitis, laryngitis, pleurisy, and inflammation in any part of the body Patients suffering from polio and arthritis may also derive benefit from fomentations But the greatest value of this form of water treatment is found in cases of colds and respiratory infection

Select a piece of blanket or flannel large enough to fit over the chest or back Fold it into a pack, dip it in very hot water, and wring it out as dry as possible Wrap this in a dry Turkish towel, or other material thick enough to protect the skin, and apply the whole pack to the area to be treated This is known as a *fomentation*

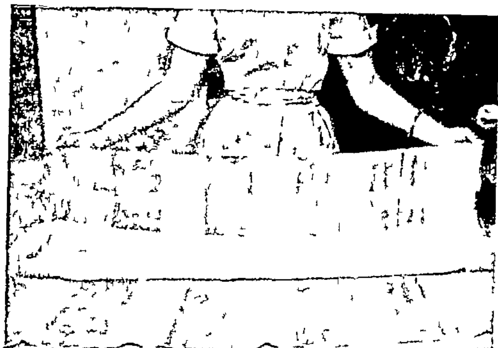
Leave the hot pack in place for ten or fifteen minutes, or until it is cool Then rub the area with a small piece of ice or a cold cloth and dry the skin with a rough Turkish towel The pack, or fomentation, may be reapplied several times, as desired Follow this with some massage or heavy rubbing, as suggested on page 105

If you are treating a patient with a chest cold, first apply the fomentation to the back, and then later treat the chest Better still,



Draw ends of towel tight and wring out as much water as possible.

3



4 Spread out on dry blanket and quickly cover to preserve heat.

5 Fold as shown, and carry to patient.



Cover skin with dry towel then apply fomentation for twenty minutes. 6

use two packs at the same time, front and back At the conclusion of the treatment, wipe the skin dry and apply rubbing alcohol or some other soothing lotion

*Cold Mitten Friction*

Many people are looking for some kind of tonic—usually a pill or something out of a bottle Yet one of the best tonics of all is the cold mitten friction All you need for this is a small wash-cloth or two and a basin of cold water preferably with ice floating in it If you are treating a patient in bed be sure to protect the bed clothes with a covering of paper or plastic material

Dip the wash cloths in the cold water and wring them out so that they are just damp With one wash-cloth in each hand rub the skin vigorously until it glows. Treat one extremity at a time, drying it off immediately to prevent chilling It is best to treat the chest and back as well Nothing will tone up the body and increase the blood flow to



A cold mitten friction provides a real tonic.

the skin like this simple cold mitten friction Its effectiveness is increased if administered after giving the hot pack treatment as described above.

### *Ice-Packs*

Ice-packs are useful in treating injured joints and muscles, especially during the acute stage Wrap a light towel around the part to be treated Next, pack small pieces of ice over the area, and cover this with some light plastic waterproof material Add another towel and leave the whole pack in place for twenty to thirty minutes. Be sure the bed is protected by a plastic or rubber sheet. Repeat the treatment every three or four hours, as may be needed This treatment

is valuable for cases of acute bursitis and for *sprains* of the wrist, ankle, or other joints

*Giving an Enema*

There are times when a cleansing enema may be needed, but this should not be very often Nor should one give this treatment without due thought. Treating an organ like the colon should never be left to the decision of an amateur However, if your doctor suggests that you give your patient an enema, this is how it should be done

First of all, you will need some type of irrigating can or container You should also have a rubber tube about three feet long One end is connected to the irrigating can The other end is attached to a hard rubber enema tip, or perhaps a small rectal tube



**Dry the patient's skin thoroughly but gently after a bath or fomentation.**

Lay the patient on his side, with his knees drawn up Apply some suitable lubricant, such as vaseline, to the enema tip Insert the tip into the rectum, usually about three or four inches Allow the water to flow into the rectum slowly The container should be raised about eighteen inches above the level of the rectum As soon as the patient has a desire to expel the fluid, allow him to do so Place him on the bed pan Stay close by in case he should need help or support. After the evacuation clean the equipment and put it away

Do not use soap-suds They irritate the bowel Plain warm water is best. The temperature should be close to body heat If you wish, you may add a teaspoonful of table salt and a quarter teaspoonful of baking soda to the solution, but this is usually not necessary In a high fever the use of ice water will help to bring down the patient's temperature

* * *

All the various water treatments we have just been describing are



A piece of ice rubbed quickly over the skin after dry heat application is refreshing.

of real value, especially in acute infections But there are times when *dry* heat may be equally beneficial Here are several useful means of therapy you can use to treat a patient at home.

### *Heating Lamp*

One good method of applying dry heat is by means of a heating lamp These lamps make use of the infrared rays produced by a coil or plate within the lamp This type of heat is beneficial in treating injuries and infections of the skin and deeper tissues Another type of heat lamp uses a large glass bulb which might be either red or white This gives immediate heat the moment the bulb is switched on

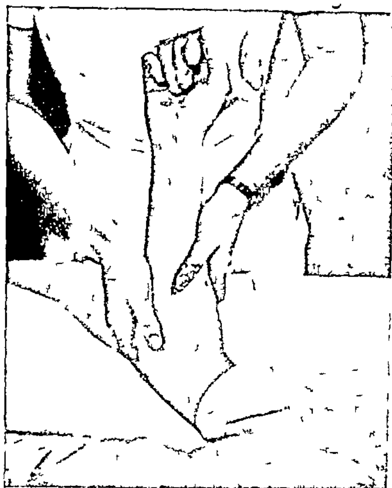
In applying this form of dry heat, keep the lamp at least thirty inches away from the skin, to prevent burning One should remove the clothing over the part that is to be treated Direct the rays of the lamp to the painful area and continue the treatment for fifteen or twenty minutes After this, gently sponge the area with a cold cloth or apply rubbing alcohol A small piece of ice may then be rubbed quickly over the area. This will bring on a good tonic reaction in the skin

### *Sun Bathing*

For many centuries the beneficial rays of the sun have been used in treating various kinds of disease Sunlight is excellent for toning up the body and killing germs However, one must take care not to overdo this type of treatment. The sun's rays are powerful, and the skin may easily be burned Therefore, expose the skin for only a few minutes at first. Next day expose the skin a little longer, gradually lengthening the time After a few days the skin will be more resistant to disease. Sunlight acts directly on the body, using the natural oils of the skin, and producing a plentiful supply of vitamin D Sunlight helps to *prevent colds* in winter

### *Ultraviolet Lamp*

Combined infrared and ultraviolet lamps are now available, but one must be very cautious in their use. It is easy to burn the skin. Ultraviolet radiation is a general tonic to the whole body, but like



Massage increases blood flow and thus aids in healing

sunlight which it resembles, it must be taken in moderation Never be tempted to make up for lost time by taking an overdosage, otherwise you may get badly burned

Young people who suffer from pimples and acne will find ultraviolet radiation an excellent way to help get rid of this troublesome skin condition But such treatment should only be taken on the advice of a physician In general people with very fair skin should be extra careful about taking too much ultraviolet radiation, even from the small lamps available for home use.

### *Massage*

When you accidentally injure some part of your body the first thing you do is to rub the area This vigorous action increases the

blood flow to the injured part and helps to relieve pain Anything that increases the circulation to and from the injured area will aid in healing and help to reduce swelling

A special method of *rubbing* is called massage. It is really a combination of several different motions of the hand, including rubbing, squeezing, kneading, circular movements and light and heavy pressure with the fingers Massage is valuable in keeping the muscles in good condition, particularly in cases of arthritis and injuries to the joints Before beginning any massage procedure, apply some gentle heat to the area being treated The massage will then be more effective

Whenever a patient has to stay in bed for any length of time, his extremities and back should be massaged once or twice each day to keep the blood circulating freely This will provide better nutrition to the tissues. Almost anyone can learn to give some of the more simple types of massage. Gentle pressure is all that is required in most cases



**Massage is relaxing for patients confined to bed.**

Let us imagine you are massaging someone's arm Pick up the muscles between your fingers and gently press on them, at the same time drawing your fingers over the skin, first *toward* the heart and then in the opposite direction This will speed up the circulation and help take the stiffness out of the muscles. It will also increase the blood supply to the area being treated and may help to prevent possible complications that sometimes follow serious injuries.

Patients usually sleep better when the muscles have been limbered up and made more pliable by gentle rubbing Even joints that are stiffened will often respond to the right kind of massage. After applying heavier pressure, try some light stroking with the finger tips This helps to relieve nervous tension and muscle spasm throughout the whole system When massage is combined with other forms of physical therapy, such as fomentations (hot packs) or the use of the heating lamp, the patient will feel the benefit not only in the treated area, but all over the body This kind of gentle treatment, given once or twice a day while a patient is in bed, will help him back to normal activity much sooner than might be expected

All these different forms of therapy show the many useful ways in which water and heat can be used in the treatment of disease One great advantage in using these natural remedies is that there is no danger of drug addiction. Remember, *there is healing power in water,* and in all these simple highly effective methods of treating the sick

Ellen G White, one of the greatest of all modern writers on healthful living has stated this beautifully in the following words

"Pure air sunlight abstemiousness, rest, exercise, proper diet, the use of water, trust in divine power,—these are the true remedies." *Ministry of Healing* p 127

CHAPTER 12

# EMERGENCY CARE

Emergencies always strike suddenly, without warning One moment everything is fine, the next, someone is involved in a serious accident Victims include all ages, from tiny children to elderly folk. Cuts, bruises, lacerations, fractures, and fainting spells are common amid all the bustling activity of life

Every day people fall from broken ladders, weakened chairs, and makeshift ways of climbing up to fix something Others trip over rough objects or fall down stairs. Some injuries are slight, others are serious and need immediate care. Are you prepared to give the kind of care they need?

Accidents are likely to occur at any time, and one of your loved ones may be involved What you do now, or fail to do, may make a great deal of difference between a quick recovery or a prolonged illness, perhaps even death

*First Aid*

First aid is the kind of treatment you give while waiting for the doctor to come It is never intended to replace qualified professional care First aid is only designed to make the victim comfortable until help arrives By carrying out the following simple steps, you will be able to calm the victim s fears and reduce any chance of further injury If he is bleeding, you must first try to stop any further loss of blood If there is a broken bone, try to immobilize the area and put the patient at rest If he is having a convulsion protect him from injuring himself If he has swallowed poison, do your best to remove the poison or else neutralize it without delay

These are the general principles of first aid Any normally intelligent person can carry them out All it takes is the ability to make definite decisions and the courage to follow them through Any lack of decision now may be fatal

### *Handling an Injured Person*

1 **Take charge of the situation at once** Send someone to notify the doctor, telling him exactly where the victim will be found.

2 **See how badly the victim is hurt.** Is he breathing regularly? Is he losing blood? If so, where? Cut or rip the clothing from the injured part, putting pressure over the bleeding points as soon as possible Be careful not to injure any area where there are broken bones Always look carefully for signs of burns, or shock

3 **Keep the victim lying down,** his head level with the chest. Don't let him sit up Calm his fears and keep him comfortable.

4 **Avoid all unnecessary movement,** especially if there is any possibility of a fracture of the spine. Many an injury has been made far worse because well meaning people tried to carry a victim to a car

5 **Keep yourself calm** Do what must be done as promptly as possible Avoid all confusion

### *Three Signs of Serious Injury*

Watch for these three important signs

1 **Serious bleeding** If the blood is dark in colour and flows continually, it means a large vein has been cut. Pressure over the laceration will usually control the bleeding If the blood comes in spurts and is bright red, an artery is involved Try pressing constantly over the cut If this fails to stop the bleeding, you may have to apply a tourniquet. Details of how to do this are given on page 111 Lacerations on the face or scalp can usually be controlled by heavy pressure over the injured area

2 **Stoppage of breathing** Watch the patient's chest for movements of breathing If no movements are seen you must begin artificial respiration at once. The best method is **mouth to-mouth breathing** Take a long breath apply your lips directly to his, and gently blow into his mouth, holding his nostrils while you do this. Continue to blow air into his lungs, about 10 to 12 times each minute. You may use a tube for this purpose, holding the lips tightly around the tube. Remember, children require less air than adults.

3 **Poisoning** Note carefully the condition of the victim's lips and mouth See if there are burns or other signs of discoloration present. If he is frothing at the lips and turning blue, he may be having

an epileptic attack. This is not due to poisoning Call the doctor at once Meanwhile, try to find out what medicines the individual has been using Aspirin poisoning is common in young children today People who are depressed sometimes take an overdose of sleeping tablets. These usually bring on a deep sleep from which the patient cannot be aroused. The victim should be taken at once to a hospital emergency room to have the poison pumped out of his stomach

### *Shock*

*Shock is an extremely serious condition,* due to sudden failure of blood circulation It is seen in such conditions as sudden heart attacks and strokes. It also frequently follows some serious injury, such as a burn, fracture, or a deeply penetrating wound of the chest or abdomen

**Signs of shock.** The skin becomes pale, cold, and clammy The eyes are dull and listless. The pulse is weak and rapid, and the victim may feel nauseated and begin to vomit. Breathing becomes irregular and shallow Unless this is quickly relieved, he may lapse into complete unconsciousness and die

Shock is always easier to *prevent* than cure The trouble is usually due to insufficient blood to meet the needs of the brain and heart

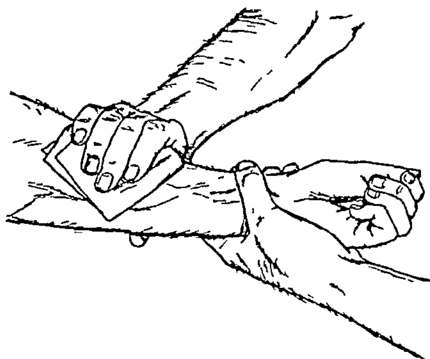
### *How to Prevent Shock*

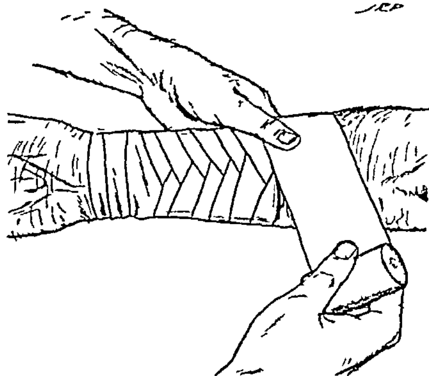
1 **Keep the victim quiet and lying down.** Make him as comfortable as you can

2 **Keep him warm** If he is lying on a cold or wet surface, try to work a blanket or some newspapers under him Disturb him as little as possible. Cover him to keep him warm Use anything that may be handy, even newspapers, for this purpose If he feels cold, place a warm water bottle at his feet Take care not to burn him

3 **Liquids.** Never give any liquid to an unconscious person. If he is conscious and the doctor is likely to be delayed, give him a warm drink if he requests it Tea, coffee, or warm milk may be used Give only a teaspoonful at a time and never more than a cup unless he feels very thirsty If he has an abdominal injury, do not give him anything by mouth

4 **Encouragement.** Shock arises directly from the injury Fear will make it much worse. Do not let the victim see his injuries. This may only increase his fear and bring on a state of severe shock. Assure





him that he is safe and that no harm will come to him if he lies quietly while waiting for the doctor His best chance for making a quick recovery is to rest calmly until help arrives.

### *Bleeding Wounds*

If bleeding is excessive, it must be brought under control as soon as possible On the other hand, if the bleeding is only slight, it may be well to let the wound bleed a little to help wash out any germs that may be present.

Be sure to remove all the near by clothing so you can see clearly what to do Take away any dirt or other material that may be touching the wound Then apply a thick pad of sterile gauze, or a freshly ironed handkerchief, over the wound, bandaging this firmly in place

For small wounds, such as cuts and scratches, just clean the area thoroughly with soap and warm water Then apply some suitable disinfectant, such as Cetavlon or Mercurochrome. Cover this with a sterile gauze dressing, and bandage carefully

### *Applying a Tourniquet*

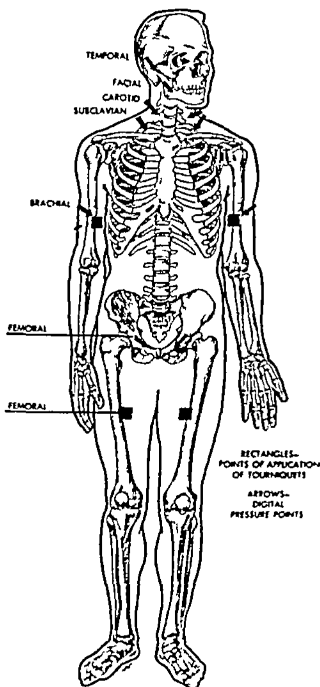
A tourniquet is a tight band that is placed around an arm or leg to control heavy bleeding It should never be used unless there is no other way of controlling the bleeding This is how it is done

Wind a flat band *twice* around the leg or arm, just above the wound A necktie stocking or large handkerchief may be used for this purpose Tie a single knot, then hold a small stick on top of the knot, and tie two more knots. Gently twist the stick until the band is tight enough to stop the flow of blood Do not twist beyond this point. Leave the tourniquet in place until the doctor comes But if this is likely to be more than half an hour, loosen the tourniquet every twenty minutes for a few seconds then tighten it again Be sure to write down the exact time when the tourniquet was applied.

### *Special Types of Wounds*

There are four main types of wounds, as shown in the picture. Each requires a different type of treatment.

1 **Abrasions** are caused by scraping the skin, as may occur from falling on a street These "brush burn injuries are always badly




If bleeding cannot be controlled at the local area, apply pressure over these "pressure points" against the bone

infected Gently wash the area with soap and warm water, removing all the dirt on the surface Cover the area with a sterile dressing and bandage carefully This will help to relieve both pain and shock.

2 **Incised wounds** are deep cuts, such as are made with a knife, broken glass, or razor blade These wounds always bleed freely because many blood vessels in the skin have been cut They are less likely to be infected Bleeding helps to wash out germs However, a few stitches mav be needed to control the bleeding Bandage the area firmly and take the patient to a doctor or to a hospital emergency room as soon as possible

3 **Lacerations** are torn wounds made by blunt instruments, or by explosions, or falls against sharp edges They are particularly dangerous because dirt and germs are often ground into the wound Much of the normal tissue in the area has been damaged. Bleeding is less severe but there is more danger of infection Such injuries are best cared for in a hospital emergency room, where the damaged tissues can be safely cut away under suitable anæsthesia and the wound thoroughly cleansed and repaired

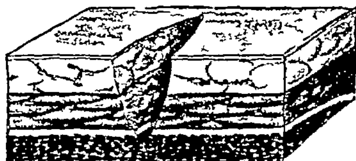
4 **Puncture wounds and stabs** are caused by narrow, pointed instruments, such as needles, nails, thorns, ice picks, scissor blades, bullets, and similar objects. Puncture wounds do not bleed freely, unless a large blood vessel has been entered Germs frequently lodge in this type of wound, and painful abscesses may form Cleanse the wound as much as possible and applv rubbing alcohol over the surrounding area Then apply a firm pressure bandage and take the patient to the doctor

### *Tetanus or Lock jaw*

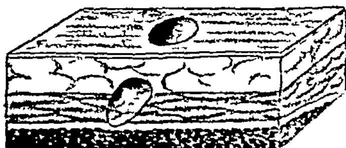
All wounds are easily infected, the greatest danger being from tetanus. These germs are found in all types of animal manure. Street dirt is always contaminated with tetanus germs. So is the soil around fields, gardens, and rural areas. For this reason, everyone, young and old, should be fully protected against tetanus.

The best way to protect yourself is to take a series of tetanus toxoid injections *before* any injury ever occurs. Prevention is always better than cure Even today, very few patients ever recover once tetanus has fully developed. Many young babies are now given special combination shots which include protection against diphtheria, per tussis (whooping cough), tetanus or lock jaw, and polio This injec-


Abrasion wound


Incised wound


Lacerated wound


Puncture wound

tion, known as DPT Polio, is given in three doses at monthly intervals. The first injection is given when the child is two months old. After this first series, another tetanus toxoid injection should be given every three years until the child is twelve years of age

Tetanus toxoid injections should be given to adults at least every five years, more often if they travel a lot or work with animals. These tetanus toxoid injections produce an active immunity to the disease. All who travel in buses or cars or trains are subject to possible injury The more protected the individual is against tetanus, the safer he will be. If an injured patient has never had tetanus toxoid injections, the doctor may decide to use tetanus antitoxin, which is a more serious type of injection, especially if a person is allergic to horse serum. The wise person will protect himself against tetanus *now*, before he is injured

### *Preventing Wound Infection*

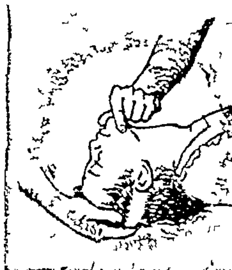
Whenever the skin is broken there is always the possibility of infection Be careful not to touch the wound with the tips of the fingers, or with anything else that may be carrying germs If the wound looks fairly clean and bleeding has stopped, cover the area with a sterile dressing and bandage it firmly in place Usually it is best to leave the wound alone until the doctor has had time to examine it thoroughly

If the wound is contaminated with dirt, and the doctor is not likely to see it for several hours, carefully wash the whole area with soap and warm water Remove all surface dirt, running the soapy water into the deeper parts of the wound Then apply the dressing over the wound and bandage it firmly in place.

A little bleeding is often beneficial in the healing Do not lift the dressing off every few minutes to see what is happening You may not be giving the blood time enough to clot

Above all keep yourself calm Do what must be done without becoming excited Remember, soap and water are more valuable than all the antiseptics you may want to apply Clean the wound first, then apply the antiseptic solution if you wish Finally, place a dressing and bandage it firmly in place In any serious injury, be sure to seek qualified medical help without delay





*Suffocation or Asphyxiation*

**Get the victim out into the air at once.** Be sure he has a clear airway Remove debris from the mouth and throat and begin mouth to mouth breathing, as outlined on the following page

**Carbon monoxide poisoning** is a very serious problem in large cities today arising from exhaust fumes from cars, buses, and other vehicles A similar kind of poisoning may arise from unburned illuminating gas and also from a leak in the exhaust system of a car Carbon monoxide is always present in smoke. Usually the victim complains of headache, weakness, dizziness, nausea, and dimness of vision Unless this is quickly relieved, the victim may collapse and die.

**Treatment:** *If the victim is unconscious, start mouth to mouth breathing at once,* following the suggestions outlined on page 117 If possible, give oxygen or a mixture of oxygen and carbon dioxide if available. *If the heart has stopped, press firmly about 60 times a* minute over the middle of the breast-bone Use the heel of the hand and press sharply toward the backbone, lifting the hand off the chest after each quick pressure. This may help to get *the heart* going again Meanwhile, have someone call a doctor at once.

**Prevention:** Have all chimneys and flues inspected at least once each year Cooking utensils should be kept clean on the outside



Mouth to-mouth breathing, as described on page 118 is the best emergency method for artificial respiration.

as well as inside. Stoves and ovens should be kept free from grease and sooty deposits. Remember, most fire fatalities are caused by carbon monoxide, not by burns Therefore, get the patient out in the fresh air at once, and avoid inhaling the smoke from a burning building or any other fire. Never start a car in a closed garage. Be sure the doors are open to allow plenty of fresh air

*Drowning*

If the victim is still in the water, try to draw him ashore with a rope or stick Use a boat, if one is handy Once on shore, follow these directions

1 **Roll the victim on his stomach** Remove water and debris from his mouth as quickly as possible.

2 **Pull the tongue forward,** grasping it between the thumb and forefinger Use a dry cloth to hold the tongue, if necessary

3 **Mouth to-mouth breathing** If the victim is not breathing lay him on his back bringing the chin forward and up Hold the nose firmly and breathe gently into his mouth about 15 or 20 times a minute. This will inflate the lungs and help restore the circulation If preferred use some type of tube firmly holding the victim's lips around the tube while inflating the lungs

4 **Heart massage** If the heart has stopped beating continue mouth to-mouth breathing while someone else gives cardiac

massage by pressing firmly with the heel of the hand over the middle of the breast bone about 60 times a minute. Be sure to lift the hand off after each pressure

5 **Call an ambulance** and transfer to the nearest hospital, placing the victim under good medical management

6 **Keep him warm**

## *Frostbite*

Many people do not tolerate cold very well, particularly during their later years. Intense cold may produce a condition known as *frostbite, in which small crystals of ice tend to form within the* tissues often completely destroying the cells **Chilblains** are a milder form of freezing, in which there is itching and burning in the skin following exposure to cold The flesh feels numb and cold, and there is considerable pain in the hands and feet.

**Treatment** Avoid rubbing the injured part, for this only increases the damage. Bring the victim indoors Cover the frozen part with a warm, dry, woollen cloth, and give him something warm to drink Gradually warm the frozen part with lukewarm water to prevent further injury If no warm shelter is available, cover the frozen area with a warm bare hand and add several layers of woollen clothing Frostbite can usually be prevented by wearing proper clothing such as gloves or mittens wherever cold is likely to be intense One should avoid smoking because tobacco constricts the blood vessels of the skin and increases the chances of frostbite Keep the feet dry, and wear warm dry socks All exposed areas, such as the face, should be protected by some suitable oil to help preserve the normal heat of the skin

## *Emergency Splints*

Accidents usually happen in the most unlikely places. A serious fracture may occur, requiring specially careful handling Here are a few suggestions for applying emergency splints to support a broken bone

Wrap about 30 layers of newspaper around the injured arm or leg and tie firmly in place. *This will prevent further injury* until more suitable splints can be applied If a newspaper or magazine is not available wrap a pillow or coat around the injured part. Tie

firmly in place, using rope, string, a necktie, stocking, or whatever is available. Any narrow board or even a walking stick can be used to support a fractured extremity But be careful not to bind the extremity too tightly, for this may cut off the blood supply

CHAPTER 13

# COMMON EMERGENCIES IN THE HOME

Emergencies are common in every home. Children are always getting into trouble in one way or another This is perhaps how they learn, by experimenting with all kinds of objects. Parents must therefore expect to have troubles even with the best behaved children They must know what to do in an emergency, whether it involves children or adults Here are a few suggestions

*Burns*

Burns are serious, not only because of pain in the area of the burn itself, but also because of possible chemical changes in other parts of the body Burns are among the most common household emergencies Young children are often burned by hot liquids, stoves, radiators, unguarded electric outlets, firecrackers, chemicals, irons, gas fires, and sunburn The greatest danger arises from shock, which so often follows a deep burn involving a large area of the body (See page 109, "How to Prevent Shock )

In severe burns the loss of body fluids can be very serious, particularly in a young child The kidneys and adrenal glands may not function well, and other internal organs may be vitally affected Even a relatively small burn may produce a serious deformity if it occurs over a large joint, such as the knee. Deep burns often result in the formation of considerable scar tissue. If this scar tissue interferes with the function of the joint, it should be removed by plastic surgery

*Treatment* Minor burns can usually be treated at home Immediate application of ice or the coldest water you can get will often limit the extent of damage. Apparently it takes a few seconds at least for the heat to "soak in' so that immediate application of cold has some neutralizing value. It also limits the amount of pain Ice is useful from the standpoint of pain even some hours after the burn has occurred After the cold treatment, you may gently

sponge the area with soap and warm water, then apply a vaseline dressing Bandage this firmly in place The pressure helps to control the pain and minimize the loss of body fluids If the pain is severe, give the patient one or two tablets of aspirin and repeat this every two hours as needed. Be sure the patient is protected against tetanus Most doctors advise everyone, young and old, to take a series of tetanus toxoid injections, as outlined on page 188

**Severe burns** involve the deeper layers of the skin and usually cause large blisters If necessary, cleanse the skin first, removing all contamination by means of soap and water Large blisters may be opened and drained For this purpose, use a sterile needle, or a knife blade that has been passed through a flame Apply vaseline gauze to the burned area and bandage firmly in place. If more than 10% of the body has been burned, the patient should be hospitalized without delay Burns are always more serious when face, hands, feet or genital organs are involved If the victim is in shock, but is still conscious, give him sips of warm water Carry him gently to hospital **Never give any liquid to an unconscious person.**

**Chemical burns** are often serious, and may result in deep scars. Strip off all contaminated clothing immediately, and wash the area thoroughly with plenty of water If possible, allow the water to run over the burn area for several minutes. If the chemical is a powerful acid, try to neutralize it with moist packs soaked in a weak solution of baking soda Burns due to *alkali* may be neutralized with vinegar or juice from a lime. *Carbolic acid* burns can be neutralized with rubbing alcohol For severe burns, apply wet packs as suggested above, and take the patient to the doctor

**Steam and dry heat burns** should be treated as any other severe burn If the patient is feeling weak, give him a warm drink. If he is unconscious, keep him lying down, but do not attempt to give him any liquid

**Electrical burns** Treat as for *severe burns* (see above)

**Sunburn** Apply olive oil or cold cream to the burned area Keep the patient quiet, lying down if at all possible. Aspirin may be used to control the pain Ice packs and cooling applications such as a towel dipped in ice water, can be applied to the burned skin to relieve the pain Calamine lotion has also been found helpful If the patient has been severely burned he should be taken to hospital.

### *Choking and Strangling*

Young children will swallow almost anything small enough for them to get into their mouths! Small toys, seeds, pieces of wood pins nails, coins, fruit seeds—any of these may cause trouble. Sometimes the object becomes lodged in the throat, at other times in the wind pipe, or perhaps the œsophagus. Parents should protect their young children from the danger of strangling, providing only toys that are perfectly safe.

**What to Do** Hold the victim forward, head down, and slap him vigorously on the upper back between the shoulder blades Another method is to lay the child across the bed with head and shoulders hanging over the side and slap the upper back If the victim is a young child, hold him up by the heels and slap his back Any of these movements may help to dislodge the object. If breathing is difficult or irregular, give artificial respiration as suggested on page 117 Get him to a hospital emergency room as soon as possible.

### *Gunshot and Stab Wounds*

Gunshot and stab wounds are always serious, especially if a bone is broken or some internal organ in the chest or abdomen happens to be injured

**What to Do:** Keep the patient quietly lying on his back Give him nothing by mouth Cover the wound with a sterile dressing, and bandage it firmly in place. Then transfer him to a hospital as quickly as possible. Always keep him in a lying-down position with a pillow under his knees.

If some abdominal organ is injured, and is visible or protruding through the wound, cover the area with a sterile dressing and keep it moist. Warm water is best for this purpose. Carry the patient to a hospital in a lying-down position Control bleeding as much as possible

If the wound is in the chest, cover the hole immediately with your hand and apply a suitable airtight dressing This will prevent the pleural cavities from filling with air, which would interfere with his normal breathing If the wound is large, place your hands on both sides of the laceration and gently push the tissues together Get the victim to a hospital as soon as possible. If necessary, give artificial respiration using the mouth-to-mouth technique (see page 117)

*Electric Shock*

Electric shock occurs when the body becomes a pathway for an electric current The shock may injure the nervous system and burn the skin and deeper tissues. If powerful enough, the electric current may stop the heart, or bring about a serious type of irregular rhythm, called ventricular fibrillation Even low voltage household currents can be dangerous, particularly when the skin is moist The longer the contact with the current the greater the danger

**What to Do** Be careful not to contact any live wire Before attempting even minor repairs on switches or bare wires, turn off the current Better still, turn off the main switch If someone has contacted a live electric wire out on the road, do not touch him with your bare hands. Use a dry, dead stick, a dry rope, or clothing to remove the live wire from the victim Be sure whatever you use is dry, otherwise you may be electrocuted in trying to save the victim.

*First aid* Once contact with the electrical circuit has been broken, begin *artificial respiration* at once Meanwhile, have someone call a physician Continue artificial respiration as long as may be necessary, as suggested on page 116 If the heart has stopped, press sharply over the middle of the chest, pushing vigorously about 60 times a minute. This closed-cardiac massage may start the heart going again Continue until the pulse is regular and strong

*Sunstroke*

Sunstroke and heatstroke are similar in their effects on the body Sunstroke results from direct heat rays of the sun Heatstroke may arise from indoor heat plus low humidity Lack of normal sweating, which is the body's way of releasing excess heat, may raise the individual's temperature to 105° F or more. At first the victim may be mentally confused and complain of a bad headache. Later he may become delirious. Unless he is given help at once his blood pressure may fall to a low level and the pulse become rapid and weak

**What to Do** Send for a doctor at once. Meanwhile carry the victim to a cool place as quickly as possible Keep him lying down Remove his outer clothing and apply ice bags or cold cloths to the head and neck, to help cool the brain and restore the temperature to normal

If possible, wrap the patient in a wet sheet and then pour cold water over him frequently until the skin resumes its normal colour Rub or massage the limbs in the direction of the heart to aid circulation.

**Give no stimulants.** Get the victim to hospital or to a doctor as soon as possible

*Unconsciousness*

An unconscious person may appear to be asleep, but this sleep is different as long as he is unconscious, he cannot be aroused He is then said to be in a *coma* No amount of shouting or shaking will awaken a patient in a coma The trouble may be due to a *stroke,* or perhaps to an overdose of insulin in the case of a diabetic patient Another cause of unconsciousness arises from alcoholic stupor or *drunkenness* The treatment will depend on the cause.

If you should happen to find an unconscious person lying on the ground, look around quickly for the cause. Is there an injury on the head? Does the pupil of one eye appear wider than the other? If so, the victim may have had a stroke or some other type of head injury Are there any evidences of poisoning? Is the person drunk, or is he suffering from electric shock or asphyxia from escaping gas?

**What to Do** Call a doctor at once. Meanwhile, *keep the patient lying down* If the face is **red**, raise the head just a little. **Give no stimulants.** For vomiting, turn head sideways to prevent choking

*If the face is* **white** *and the pulse is weak, lower the head just a* little below the level of the body Apply gentle heat If he must be moved, transport him in a lying position.

If the face is **blue**, the victim is in deep shock. Unless you do *something he may soon cease breathing Send for a doctor* or ambulance at once. Meanwhile, keep him lying down and begin artificial respiration using the mouth-to-mouth method, as suggested on page 116 Keep him *warm* and transport him to a hospital as soon as possible *Gently massage the limbs, drawing the blood toward* the heart Use oxygen equipment if it is available.

*Faintness and Dizziness*

Fainting is common especially at certain times of life It may arise from a number of different causes, such as hunger, fatigue

anxiety, or even emotional shock which may occur upon hearing bad news. Any slight injury, or even the sight of blood, may bring on fainting So can internal bleeding and severe pain

When a person faints there is temporary lack of strength Muscles become limp, making it difficult for the patient to stand At first he may feel dizzy, as if the floor is moving If he can lie down promptly, he may not lose consciousness For a few seconds he may fail to breathe, and the pulse may be very weak

**What to Do** Have the victim bend forward and place the head between the knees. This may be all that is needed If he does not improve, lay him flat on his back with his head a little lower than the body Elevate the legs to bring the blood back toward the heart. Keep the patient lying down until he recovers. If recovery is slow, cover him with a blanket and call a doctor His condition might be due to something more serious than you realize

*Fits and Seizures*

**Epileptic fits** are among the most distressing of all human reactions. In a true epileptic seizure or fit the victim quickly falls to the ground and loses consciousness. For a few seconds he stops breathing and may turn blue. This is followed by *convulsions* or strong jerking movements, involving all parts of the body In most cases there is some frothing at the mouth. After a few more seconds the victim relaxes and begins to breathe again Soon his colour returns to normal

He may have only one or two convulsions in a whole lifetime. On the other hand, he may have several attacks in rapid succession and at fairly frequent intervals Epilepsy is more fully discussed in Chapter 45

**What to Do:** Try to *prevent the patient from hurting himself* Loosen any tight clothing, and if possible place a small piece of wood or some cloth between his teeth to prevent him from biting his tongue. Keep him warm, but *do not give any stimulants* If this is his first convulsion, send for a doctor, or take him to a hospital

Young children will often have convulsions because of an elevated temperature Any fever even as low as 101° F may bring on convulsions The treatment is to *cool the child* with whatever is at hand ice or cool water Rub the limbs to promote circulation, and give artificial respiration if necessary (page 117)

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### *Stroke or Apoplexy*

Strokes are caused by a functional failure of a blood vessel in the brain Sometimes this is due to rupture of a blood-vessel, more often to obstruction by a clot or thrombosis Strokes are common in the later years of life. Occasionally they will occur in younger people as well Small strokes are common, and are discussed in Chapter 45

In a severe stroke, the victim becomes unconscious and breathes very deeply There may be Cheyne-Stokes breathing, with short spells of deep respiration, followed by equally short periods when there is no breathing at all This always means serious brain damage One pupil may appear larger than the other, and one side of the body may become limp The mouth may be drawn to one side.

**What to Do** Lay the patient on his back Raise the head and shoulders slightly and keep him quietly lying down Do not attempt to give anything by mouth during the early stage If there is vomiting, turn his head to one side to prevent choking *Keep him warm* and have someone stay with him until the doctor comes.

### *Alcoholic Intoxication*

Alcohol in any form may cause intoxication if enough has been taken It is responsible for many deaths, hence its use should be tabooed as a social menace Usually it is not the drunkard but the so-called 'social drinker,' who claims that he "never gets drunk," who causes most of the trouble The alcoholic who is 'dead drunk' can be allowed to sleep off his stupor This may take one or two days Usually he is not much of a problem But the man who is *half drunk* is often violent, and may need to be restrained He may continue to drink and then go into a state of collapse Unless he is given proper aid, he may even die.

Young people should be urged to avoid the use of alcohol in any form They should be given the truth on this important subject. For more details on alcoholism, see Chapter 46

### *Sudden Heart Failure*

Sometimes an apparently healthy person will become weak and fall to the ground After a few minutes he may cease breathing and

there may be no pulse. In some cases a sharp blow over the middle of the chest may set the heart going again Check the pulse, or better still, lay your ear down on the chest and listen for the normal beating of the heart. If there is no sound, you must begin closed cardiac massage at once. Lay the heel of your hand down on the breast bone or sternum and press sharply about 60 times each minute. At the same time have someone else give artificial respiration, prefer ably by the mouth to-mouth method, as explained on page 117 Do not give up too soon. Some cases have been revived after having appeared "dead' for several hours.

CHAPTER 14

# BITES AND STINGS

Bites and stings from animals and insects are not merely painful but often dangerous Dog and cat bites are the most common, but injuries may occur from other animals as well In dog bites the flesh is usually torn and lacerated Cat bites often cause a more serious reaction, because the cat's teeth are sharp and penetrate deeply into the tissues.

**What to Do** Always **wash the skin thoroughly** with soap and water Allow the wound to bleed as much as it will This will help to remove germs. Deep puncture wounds may have to be opened up under local anæsthesia Torn skin should be cut away, and the clean edges drawn together and stitched in place. Be sure the victim is protected against tetanus. This is discussed on page 112

After thoroughly cleansing the injured area with soap and water, pour more clean water over the wound, especially into the deeper parts Then apply some suitable antiseptic, such as Cetavlon or Mercurochrome and cover with a thick pad of sterile gauze, bandaging this firmly in place.

Be sure that large and deep wounds are treated by a doctor

### *Rabies*

Rabies, or hydrophobia, is one of the worst diseases known to man The virus is carried in the saliva of an infected animal. After being introduced into the area of a wound caused by the bite of the infected animal, the virus passes along the nerves, and finally reaches the brain where it causes a type of encephalitis or irritation of the brain

Rabies may be transmitted either by biting or licking The virus, however, cannot pass through unbroken skin All kinds of animals may carry rabies, including dogs, wolves, foxes, bats, mongooses, and deer Even cows and cats have been known to transmit the virus But the chief danger is from rabid *dogs* Bites on one's

head and neck are particularly dangerous because of the closeness to the brain Once rabies has fully developed, there is *no known cure*

**What to Do** Man is much more resistant to rabies than is the dog If a dog or any other animal bites a man, **do not rashly destroy it.** Keep it under observation ten days, confined in some suitable place where other people will not be in danger A dog with rabies soon becomes increasingly restless and excitable. It refuses to eat, and indulges in excessive barking and growling If the animal is not restrained, it may bite many other animals and human beings. Such an animal should be destroyed when the diagnosis is confirmed. Government health officials should be contacted.

**Thoroughly wash the area of the bite,** using plenty of **soap and water** Then apply some suitable dressing and go at once to your doctor He may advise the use of hyperimmune antiserum,* particularly if the public health authorities think the animal is infected with rabies. The hyperimmune antiserum and the rabies vaccine are the only methods available that will protect the victim against this dreadful disease.

## *Snake Bite*

A poisonous snake has two needle-sharp fangs or teeth, one on each side of the upper jaw At the root of the fang there is a poison gland When the snake strikes, it jabs downward, hitting the skin with its fangs and immediately releasing a few drops of venom The snake then recoils and is ready to strike again The chief poisonous snakes are cobras, kraits, vipers, and sea snakes

Pain and swelling almost always follow the bite of a poisonous snake The pain is felt immediately and the swelling soon follows. The skin becomes purple in colour If the fang happened to enter a vein, the poison is quickly carried throughout the body Two distinct marks or puncture wounds about one inch apart like      may be seen in the area where the fangs passed through the skin A drop of blood will be seen over each wound In non poisonous snake bites there are merely scratches or bruises.

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*This 14-day series of injections prepared in India by the Pasteur Institute at Coonoor is available through any Government hospital in India, or can be obtained by any doctor directly from the Institute. Readers in other countries are advised to apply at their local health centres for pertinent information.

**What to Do** 1 **Tie a tourniquet or ligature** around the limb, just above the area of the bite. Use a handkerchief, necktie, shoe-lace, or other suitable material for this purpose The tourniquet should be just tight enough to stop the flow of blood in the surface vessels. You can tell whether it is tight enough by observing how much the veins swell just below the ligature This tight band helps to slow the absorption of poison

2 **Keep the victim lying down,** with the affected limb a little lower than the rest of the body

3 **Sterilize a sharp knife or razor blade,** by passing it through a flame. With the tip of the blade **make a number of cuts** across the area of the bite, about a quarter of an inch deep, so that the blood will flow freely

4 **Apply suction to draw out the venom** *Do this every few* minutes with your mouth There is no danger if you have no wound or abrasion in your mouth The venom is not poisonous, even if swallowed Another good suction method is to heat a small bottle so that most of the air has passed out of it. Press the mouth of the bottle firmly over the area of the wound As it cools, it will provide suction Keep the bottle over the area for several minutes

5 **Take the victim to a doctor** as soon as possible

6 If the swelling continues above the ligature, move the band up higher and make a few more cuts along the course of the blood vessel draining that area Do not put any local medications on the bite unless it be to rub a strong solution of potassium permanganate in the wound.

7 If the victim seems **weak or dizzy,** give him strong tea or coffee. **Never give alcohol** This only spreads the poison through the body more quickly

8 **Lympholized antisnake venom serum** Health authorities in most countries provide *antivenene* to neutralize the poison of the snake. Your doctor will know where to obtain this. Follow the directions carefully Remember, children require much larger doses than adults. The reason for this is that the smaller and lighter the body of the victim the higher the concentration of the poison If necessary inject four or five ampoules of antivenene into the muscles around the area of the bite. It is wise to give some antivenene also in the vein, so that wherever the snake poison travels in the body, the antivenene will quickly neutralize its effect.

9 **Tetanus antitoxin** should be given to all snake bite victims At least 3,000 units should be injected, after a proper test dose in the skin has proved that the patient is not allergic to horse serum.

10 **Keep yourself calm.** Avoid excitement Keep the victim quiet. With proper care most of these cases seem to make a good recovery

*Prevention* Snakes usually bite in self defence Watch where you walk, especially in areas where snakes are known to live. You can protect your feet by wearing high boots Young children should be taught the danger of handling snakes and other reptiles Always avoid using bare hands when climbing over rock ledges where snakes may be lurking

*Spider Bites*

Spiders use a kind of venom to paralyse their prey Most spiders are relatively harmless to man, but some types are dangerous, particularly to young children Spider venom affects nerve endings, causing weakness, dizziness and nausea Breathing may become difficult, and the patient may even go into shock Convulsions may sometimes occur in small children following a spider bite

**What to do** Put the patient to bed and apply a hot water bag or other gentle heat to the abdomen For severe bites, calcium gluconate should be injected by vein ACTH or cortisone are also valuable in relieving this condition

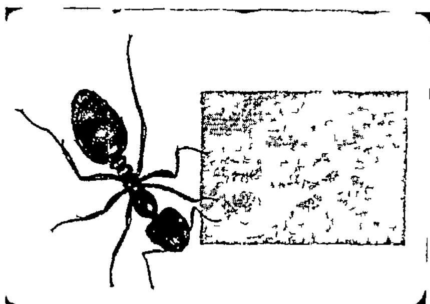
Use DDT to spray the areas where spiders spin their webs. This will destroy the spiders and also the insects on which they feed.

*Centipedes*

Centipedes have a pair of hollow fangs through which they inject venom into the skin Usually this produces a local reaction. But in certain tropical areas the bites from large centipedes may cause swelling, fever, vomiting, and a severe headache. Treat as suggested above for spider bites

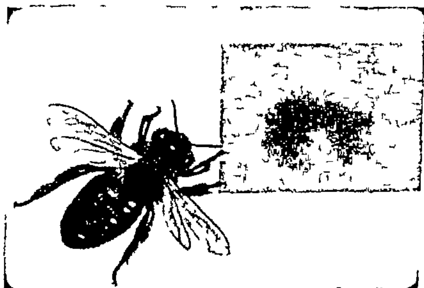
*Scorpions*

Scorpions have a single curved stinger in the tail, through which they inject a powerful venom that produces severe burning

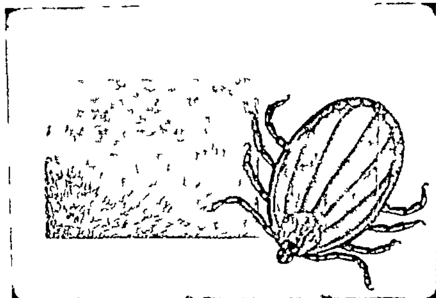


A fire ant gives a painful bite. Household ammonia and ice-packs help relieve the pain.

pain, followed by convulsions and temporary paralysis. Nausea, vomiting, dizziness and headache are common after a scorpion sting. The pulse may become weak and the breathing rapid. Scorpion



Some people are highly sensitive to bee sting, and must be desensitized.



To remove a tick, slowly apply a lighted match to its tail.

venom may even produce acute pancreatitis, a very serious condition, especially in young children

**Treatment** **Apply a tourniquet** above the area, similar to that used for snake bite (See page 111 ) Lay an **ice pack** over the injured area to relieve pain and slow the spread of poison Treat as for severe spider bite Local injections of novocain will also relieve the pain and help to prevent shock Keep the victim lying down

### *Ticks*

Ticks are prevalent in certain parts of the world They often carry spotted fever tick typhus, and other serious diseases. If untreated the poisons from the tick may paralyse the brain and heart

**What to do** Remove the tick from the skin by applying a lighted match to its tail This causes the tick to let go of the skin If the heat is applied too rapidly, however, it will kill the tick before he has time to pull his head out of the skin Be sure the tick s head is completely removed An alternate method is to apply a drop of kerosene to the tick. This causes him to loosen his hold If a fever develops, call your doctor Always examine the body carefully after being out in areas where ticks are abundant.

### *Bees, Wasps, Hornets, and Ants*

All stinging insects, such as bees, wasps, hornets, and ants, have a similar type of venom. Treatment is much the same. Always be sure the stinger of the bee or wasp is removed from the wound. Then apply a weak solution of ordinary household ammonia. If very painful, some local anæsthetic, such as procaine, may be injected around the sting Ice cubes over the injured area will help reduce the pain and swelling Alternating hot and cold applications may be helful in more severe cases See page 96

*Note* Some people are highly sensitive to bee venom and may have to be desensitized by special treatment in hospital.

# FRACTURES AND BROKEN BONES

Doctors recognize two main types of fractures *simple* and *compound* In a simple fracture there is no break in the skin. In a compound fracture the skin will be torn and the broken ends of the bone may even be seen sticking through the skin Of the two types, the latter is far more serious because of the danger of infection.

Fractures must be handled properly right from the start Otherwise, a simple fracture may turn into a compound fracture by rough or careless handling There is also the danger of injuring the lungs, bladder, and other internal organs, unless one knows what to do Here are six simple steps

*Handling a Fracture*

1 **Send for a doctor,** if at all possible

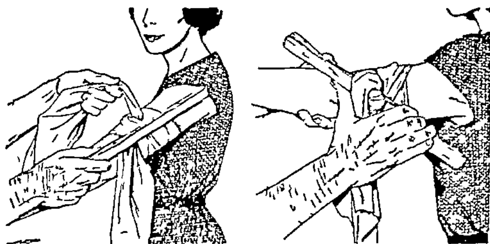
2 **Prevent further damage** by applying a splint (see below) before attempting to move the victim.

3 **Keep the injured person warm** and comfortable, to combat shock

4 **Control bleeding** Apply heavy pressure over the bleeding vessels, using a bandage and a clean dressing If necessary, apply a tourniquet as suggested on page 111 Cut or remove any clothing that obstructs your vision of the injured area.

5 **Leave the bone fragments alone** If you see the broken bone sticking through the skin cover with sterile gauze and apply a splint. Hold the limb steady in the position where the break occurred Leave all further manipulation to the doctor Take the patient to a hospital at once.

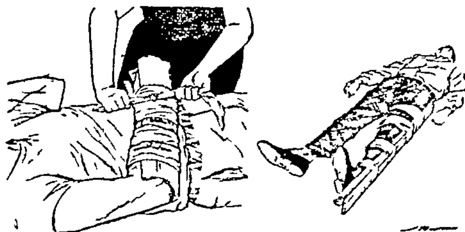
6 When in doubt whether there is a fracture or not, **apply a splint** as suggested below The only purpose of a splint is to hold the bone fragments steady so that the nearby joints cannot move. Any movement of the injured limb may cause serious trouble.



Applying a tourniquet Wind bandage around limb tying one knot, hold stick over knot and tie two more Gently wind stick tight enough to control bleeding.

*Applying Splints*

Use whatever you have at hand—a coat, pillow, folded blanket, magazine, or perhaps several newspapers folded together These are all useful as padding for temporary splints Sticks, branches from trees, umbrellas walking sticks, metal tools, broom handles, wide boards



"Splint them where they lie" is good advice Use any material that is handy—ties, handkerchiefs, shoe laces stockings, newspapers, sticks, boards or clothing.

—any of these may serve in an emergency The main thing is to hold the broken fragments steady, preventing unnecessary movement

Be sure the splint is well padded where it touches the skin Use any soft material for this purpose Support the fractured limb, using a *sling* or other means wherever indicated

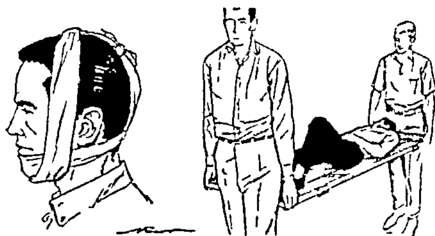
If the victim's back is injured and he must be moved, secure a wide board Place the board beside him on the ground, and gently roll him onto the board Take care not to bend the back in any way He can then be carried to the nearest hospital

In case the neck is injured someone must steady the head to keep it always in the same relationship to the body while the patient is being moved It is well to gently pull on the head to keep the neck straight After the individual has been placed on the board, pillows or folded blankets may be used to keep the head steady, or someone may be assigned to hold it until the victim reaches the hospital

### *Sprains and Bruises*

**A sprain** is an injury in which the tissues around the injured joint have been torn This produces pain and swelling and often some discoloration under the skin A sprain is not a fracture, but it can be very painful

**What to do** Apply cold cloths or ice to the injured joint Con



A head bandage to control bleeding

Using a door for a stretcher

tinue these cold applications until the swelling subsides. One or two days later hot packs may be applied, or alternating hot and cold treatment similar to that described on page 96 But cold applications are best in the early stages of the injury

**Bruises** are the result of blows from some blunt instrument or surface Usually *the skin is not broken, but the tissues underneath* are damaged and many small blood vessels are torn This subcutaneous bleeding produces the black and blue marks under the skin. A *black eye* is a bruise of the soft tissues around the eye.

**What to do** Apply cold cloths or ice immediately to the area. This will help to reduce the pain and swelling Continue this simple treatment for twenty to thirty minutes at a time. Treat every three or four hours as needed. Later you may use alternating hot and cold applications until all pain and swelling have disappeared. If the blow was heavy, have a doctor examine the injured part.

### *Improvising a Stretcher*

Carrying an injured patient in an emergency requires skill and good judgment Many a victim with a fractured spine or pelvis has been more severely injured by well meaning onlookers, who have picked him up and jack knifed him into the back seat of a car For proper handling, follow these instructions

1 **Keep the victim lying flat** on his back or side If no stretcher is available, use a wide board, an ironing board, or a door, if one is handy

2 **Lay the board alongside the victim** and gently roll him onto it, preferably face up

3 **Pass several loops of rope** sheeting or other material around the board and tie *firmly to keep him from falling off*

4 **Gently lift the board** and carry the patient to where he can secure the help he needs

CHAPTER 16

# PROTECTION AGAINST POISONING

Believe it or not, you have certain *poisons in your house*, some are deadly, others are less harmful. Some carry special labels, others do not. If you tried to do without any poisonous substances, you would have to eliminate shoe polish, paint, mothballs, matches, ink, cough medicines talcum powders, soap, detergents, disinfectants, and many other items that you use every day This means that you and your family must learn to live with all these different poisons and use them carefully and intelligently

Poisoning is more common in young children But it is surprising how many adults are also accidentally poisoned by such things as cleaning fluids, paint removers, or insect killers. One frequent source of trouble is some old medicine with a label that can no longer be read Other people are poisoned by taking pills or medicines in the dark Better to go without medicine than to take such a risk Young children are often poisoned by taking sugar coated pills and other medicines that should have been kept locked up or well out of their reach

### *Preventing Poisoning*

1 **Throw all old medicines away** Keep new prescriptions always in their original containers.

2 **Always read the label** carefully before taking any medicine. If the writing on the label is not clear, do not take the medicine. Throw it away

3 **Wash all fruits and vegetables thoroughly** before eating Dangerous substances may possibly have been sprayed over these foods to protect them from insects and other pests. Be sure such poisons are removed before you use these foods.

4 **Insect sprays** and "bug bombs" should be used only in a well ventilated room. *Never inhale the fumes or spray* Do not use



Keep all medicines locked away well beyond the reach of small children.

these poisonous sprays around food, or where food will later be prepared Always leave the room as soon as you have finished spraying

5 **Never keep poisons** on the same shelf with your foods. You might take the poison by mistake. Keep all household medicines locked away well beyond the reach of small children Household cleaning olutions, insecticides and rubbing alcohol should be safely stored where children cannot possibly reach them

6 **Training:** When your children are four or five years old, tell them about the dangers of taking any pills they might find around the house Also explain to them that leaves and berries from strange plants might be harmful Make it a practice for them to take nothing except what you give them If your child has confidence in you he will usually accept your advice.

*First Aid for Poisoning*

1 **Identifying the poison** is the first step in selecting the right antidote Always try to find the container

2 **Call the nearest doctor,** giving him all the details as clearly as possible

3 **Induce vomiting** Lay the child across your knees with his head down and place your fingers at the back of his throat to induce vomiting For an older child or adult, give one or two glasses of milk *or the white of an egg Use water if nothing else is handy* A tea spoonful of salt added to the water will increase the tendency to vomit

4 **Rush the victim to hospital** if you are close enough Take the poison along with you in its original container, so that the doctor will know what antidote to use.

5 **UNIVERSAL ANTIDOTE** Neutralize the poison if you know what it is If you don t, here is the universal antidote

Wood charcoal, 2 parts (burned toast may be substituted)

Milk of magnesia, 1 part.

Tannic acid (or strong tea), 1 part.

Give 1 teaspoonful in a glass of water

Or one may give a heaping teaspoonful of flour of any kind mixed in a half cup of water

*Care of the Patient*

1 Keep the feet warm and elevated to combat shock.

2 Support the circulation by the use of milk, strong tea or coffee, or just plain warm water

3 Keep calm Do not become overly excited Quietly do all you can to help the victim Meanwhile, call your doctor, or take the *patient to hospital for observation* and treatment. What you do those first few minutes may prevent much pain and illness, and might even save the victim s life.

# INTERNAL BLEEDING

Internal bleeding may occur in any part of the body It is important to know the exact place in order to treat the hæmorrhage properly

### *Bleeding from the Stomach*

Bleeding from the stomach is very common, particularly in those who have ulcers The blood may be evacuated in two ways. Some may be vomited, and will probably appear dark brown in colour, owing to partial digestion of the blood in the stomach. Most of the blood, however, will pass through the bowel and appear as a *black, tarry stool* This change in colour is due to further digestion taking place within the small bowel

Bleeding ulcers are always serious, especially if there are black, tarry stools This should always be investigated by a competent doctor The bleeding might be due to something else such as cancer of the stomach, or perhaps cirrhosis of the liver Cirrhosis is more likely to occur in people who drink large quantities of alcohol Unless the bleeding is quickly brought under control, the patient may collapse and die In any case, call the doctor at once Meanwhile, keep the patient lying down, and apply an ice bag over the abdomen Do not give him anything by mouth, especially if he is vomiting

### *Bleeding from the Rectum*

Blood coming from the rectum or lower bowel is usually bright red in colour This type of bleeding most often arises from hæmorrhoids or piles Cancer of the bowel is another cause of bleeding from the rectum Be sure to consult your doctor at once before the blood loss becomes too severe. Meanwhile, apply an ice bag to the bleeding area, if possible.

### *Bleeding from the Bladder*

Blood appearing in the urine at any time except during menstruation always means something serious is going on in the bladder or kidneys Bleeding may arise from *stones* in the bladder, or from some acute inflammation, or perhaps from small polyps or tumours. Even tuberculosis may be responsible for blood in the urine.

Bleeding may also occur if a person is taking anticoagulants, or blood thinning drugs to keep his blood from clotting The bladder may be the first place where this type of bleeding will show Call your doctor at once, or take the patient to the hospital for a full examination

### *Bleeding from the Vagina*

Regular bleeding from the vagina, occurring every 28 days, is perfectly normal. But bleeding between menstrual periods is decidedly abnormal and may indicate some condition that should be corrected. Heavy bleeding between menstrual periods, or during pregnancy, is always serious Bleeding occurring after the menopause may indicate the presence of cancer All women in middle life should have a complete pelvic examination at least every six months, whether they are bleeding or not

Remember, cancer does not cause pain during the early stages. Bleeding may be the first sign of trouble. Therefore, see your doctor whenever abnormal bleeding occurs

### *Treatment for Internal Bleeding*

Put the patient to bed, and keep him *lying flat* If he tends to vomit, turn his head to one side. If the bleeding is coming from the pelvis or abdomen, fill a rubber bag with crushed ice and gently lay it over the area where you think the blood is coming from. If the patient seems thirsty, give him a few small pieces of crushed ice.

If the bleeding is coming from the vagina or rectum, elevate the foot of the bed about 18 inches. You can do this by raising the foot of the bed and placing it on an ordinary straight chair

If the patient is pregnant, call the doctor at once. Meantime, keep her quiet. Do not let her move around any more than absolutely

necessary Lay an ice bag over the lower abdomen and give her all the reassurance possible Keep her lying down until the doctor comes, or until you can get her to the hospital.

### *Nose bleed*

Nose bleeding is common at every age In children the bleeding often is caused by injury to the nose In elderly people the bleeding may arise from high blood pressure If the head has been injured, and there is a mixture of blood and watery or spinal fluid, there may be a fracture at the base of the skull It is important to have an X ray in all such cases

**Treatment for nose-bleed** Keep the patient sitting *upright* in a comfortable position, with the head held back Apply steady pressure to the side of the nose that is bleeding Press on the nostril and hold it firmly for at least 12 or 15 minutes The patient should breathe through his mouth during this time *He must not blow his nose* Have someone apply cold cloths to the back of the neck or to the face, or both If the bleeding is heavy and does not stop in a short time, call the doctor It may be necessary to cauterize the bleeding area Sometimes a large injection of female hormone, given intravenously, will help to stop the bleeding In cases of heavy bleeding it may be necessary to have the nasal passages packed with special gauze to prevent further hæmorrhage

# ATOMIC INJURIES

Modern warfare is not like warfare in the past Nuclear weapons have been designed to destroy whole cities and large segments of the population What can one do to survive? That depends on where you happen to be at the time hostilities break out

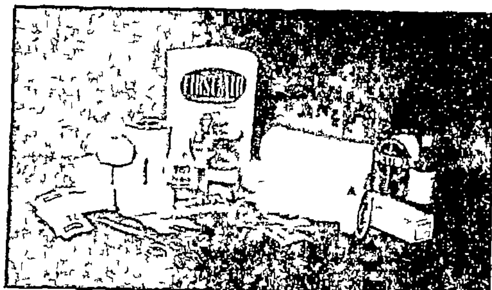
If you are at some distance, you might stand a chance of survival provided you know what to do and are willing to carry out certain important steps for your safety

There are three sources of danger from nuclear weapons (1) a direct hit (2) severe burns and other injuries that occur from a distance, and (3) radio active fall out There is probably no escape from a direct hit Everything within a certain radius will just disappear Farther away the situation will be somewhat different There will be many serious injuries but some people will survive, depending on the amount of protection they have

Injuries from an atomic explosion are not much different from those already outlined in the chapters on fractures and lacerations except that there will be so many more serious casualties Burns should be treated in the same way as any other type of burn, as outlined on page 119

**Radio active fall out** is different If a nuclear bomb is exploded near the ground the vacuum resulting from impact immediately sucks up an enormous cloud of dust This forms a mushroom shaped cloud As this cloud disintegrates, some of the radio-active particles fall onto the immediate areas of the explosion Other dust particles are carried long distances by the wind, endangering urban and rural areas hundreds of miles from the site of the explosion Unless fully protected many people will die because of this radio-active fall out.

Unfortunately radio-active dust cannot be detected by smell, touch or taste It requires a special monitoring system using a Geiger counter or some similar apparatus The greatest danger from fall-out occurs during the first two days Heavy exposure to radio-active dust will lead to illness and death in a short time. The only protection is some suitable shelter, preferably underground It would not




Every home should have a well stocked first aid kit containing absorbent cotton, gauze pads bandaids tincture of benzoin or mercurochrome Dettol, and medicines for snakebites and burns.

save you from a direct hit, but it could well protect you and your family if you happen to be some distance from the explosion.

Try to keep your body covered as much as possible to prevent the fall-out from directly contacting your skin Washing will remove the radio-active particles from your clothing and skin, but the water would then contain radio-active particles Don t allow this water to contaminate your food or drinking water

In the event of nuclear attack, food supplies should be kept in a closed refrigerator or in properly sealed containers Be sure to wash off cans and bottles before opening them Boiling will *not* remove radio-activity

*Radiation Sickness*

Radiation sickness is likely to follow when any portion of the body has been exposed to the direct rays of the blast. In severe cases there will be nausea, vomiting, diarrhœa, swelling of the skin, as well as a feeling of weakness and prostration followed by coma, and perhaps death

Milder doses of radiation may produce feelings of weakness, followed by vomiting and diarrhœa, and perhaps some prolonged infection. With proper treatment, most of these cases will eventually make a satisfactory recovery Lighter doses of radiation may produce few if any symptoms beyond a mild feeling of nausea

*Treatment* Blood transfusion may have to be given—if there is any blood available Certainly in any overwhelming disaster there will be far too little blood to meet all the needs Blood should therefore be reserved for the cases that really have a chance to recover

*Preparing Your First Aid Kit*

Every home should have a first aid kit for emergencies Here are some suggestions for making up such a kit

- Sterile gauze squares, 3" x 3", in packages
- Adhesive tape, 1" width
- Burn ointment, one tube
- Aromatic spirits of ammonia
- Tourniquet
- Bandage scissors
- Antiseptic solution (such as Cetavlon)
- Splinter forceps (tweezers)
- Roller bandages, 1" and 2" wide
- Mineral oil, or castor oil, for use in eyes
- Triangular Red Cross bandage, made from any cloth, 36" square
- Absorbent cotton, sterile

Do not keep your first aid kit with the regular medical supplies in your medicine chest It is far better to have the first-aid kit in a different place These materials should be kept in an air tight, metal container, plainly marked for use in a time of real emergency Be sure you know where to find your first aid kit in a hurry

# EXPECTANT MOTHERHOOD

The birth of a baby is a marvel, a miracle far greater than the most intricate nuclear device, or the most elaborate machine. No other creature in the world has such a wonderful future as a human baby none has so many untold possibilities

Like all other animals, a baby begins from just one single cell the human ovum This tiny egg cell is born in the ovary, the female egg forming organ just to the side of the uterus All normal women have two ovaries, one on each side of the uterus, lying close to the ends of the Fallopian tubes, or oviducts Each month, about 14 days from the beginning of her last menstrual period a tiny egg or ovum is produced This human egg has been specially prepared in a tiny pocket of cells deep within the ovary At precisely the right time it leaves the ovary, and enters the Fallopian tube, or oviduct. This process, known as *ovulation* lasts several days It is the only time a woman can actually become pregnant.

The female cell or ovum already carries the characteristics of the mother It is many thousands of times larger than the male cell or sperm, which carries all the family traits of the father Only one sperm cell is needed to fertilize the ovum during ovulation, and with the union of these two cells, fertilization is complete Already future characteristics of the new individual the colour of the hair and eyes, texture of the skin, even the shape of the finger nails, have been determined Wondrous things lie ahead, for during the next nine months that tiny speck will grow into a baby, billions of times larger than it is now

*Life Before Birth*

At first there is only one cell, but things do not remain like this for long Soon that cell begins to grow and expand until it doubles in size. Then it promptly divides into two cells, each the same size as the original These continue to divide and soon there are four,



then eight, sixteen, thirty two, sixty four, and so on Each change proceeds in perfect order, except in those very rare cases where an abnormal cleavage may produce twins each exactly like the other However, most twins are not identical

False developments may produce certain deformities, such as hare lip, cleft palate, shrivelled limbs, or an abnormal heart These are not common In former days people blamed the gods, thinking nature was making a cruel sport of them Today we know all these normal growth changes are so delicate that we are amazed at their smooth order of development. No longer do we blame nature for an occasional mistake. Rather, we marvel at her success in producing so perfect an organism as a human baby from what appears to be such meagre material.

Within a few days that one single cell—the fertilized ovum—has multiplied itself into a group or cluster of tiny cells all closely bound together It travels through the Fallopian tube, or oviduct, to the uterus or womb This leisurely journey may take perhaps a week.

Equally interesting changes are taking place in the uterus, where nature is busy preparing a soft, thick bed on which the tiny cell mass will finally come to rest There it soon makes itself at home. That little cluster of cells, called the *embryo,* is hungry So it produces certain enzymes that dissolve some of the mother s tissues within the uterus and feeds on them. Many surprising changes begin to take place at this point The cells continue to multiply, folding themselves into various shapes and patterns, all with their own special parts to play Some of those tiny membranes will eventually form the skin. Others will shape themselves into digestive organs. Others will form the muscular system of the body, while still others will change into bones and connective tissues.

### *Brain and Nervous System*

Out on the surface of the little embryo a tiny crease appears. Gradually it folds itself inward and forms three tiny hollow chambers, with a short tube thrust out at one end Believe it or not, this is the beginning of the spinal cord and human brain! It all looks so simple at this point. One could hardly imagine the enormous possibilities that lie ahead of the rapidly developing human organism

Still the wonderful process of growth goes on. Nerves grow out to the tissues and organs long before they are actually needed, linking together the whole organism with an elaborate system of living electric cables Meanwhile, a strong framework of tough tissues is laid down in cartilage or gristle, later developing into powerful bones and joints Near by muscles begin to attach themselves by tendons to the bones ready for active days ahead

Unlike the birds, reptiles, insects, and other simpler forms of animal life, the human baby, in common with higher animals, must depend upon his mother for food, shelter, and protection He must grow inside her body for a definite period until he is ready to live on his own. He does this by means of a special organ called the placenta or "afterbirth"

The *placenta* develops from those same folding membranes of which the baby himself is formed The placenta is shaped somewhat

like a mushroom, except that where the stem should be there is a long cord. This is the *umbilical cord* It contains blood vessels through which the baby receives food and oxygen from the mother The other end of the umbilical cord is attached to the middle of the baby's abdomen. After the baby is born this cord is carefully tied and cut, and the placenta is thrown away Its work is finished The short end of the umbilical cord, the part attached to the baby, eventually dries up and falls off, leaving a depression in the middle of the abdomen called the navel, or umbilicus The umbilical cord is the only real connection between the unborn baby and the mother

Early in its development, the placenta sinks tiny 'fingers" or tentacles down into the soft, inner lining of the mother's uterus. These finger like structures contain small blood vessels that connect directly with the baby's heart and circulation

Deep within the uterus these tiny vessels from the baby lie closely parallel to another set of blood vessels belonging to the mother These two separate blood streams have no actual connection with each other but the membranes that divide them are so thin that food materials, oxygen, and waste products can readily pass across. So the baby draws his food and oxygen from the mother's blood stream while it the same time waste products from his body are picked up by the mother's blood stream and carried to her lungs and kidneys where they are removed

Along with the placenta, another interesting structure is formed. During the early months of pregnancy, those same folding membranes form themselves into a strong envelope that completely covers the baby This envelope or *amniotic sac* is filled with a clear fluid that protects the baby from injury and yet allows him to move freely within the fluid The amniotic sac is often referred to as "the bag of waters The fluid it contains is mildly antiseptic, thus protecting the baby from germs Normally the bag of waters ruptures just before birth opening the way for the baby, and making the process of birth that much easier

This is a brief picture of how a baby develops in the uterus or womb The whole astounding process takes place with perfect ease, and in most cases, without any serious complications provided the mother is in reasonably good health. Every step leads on to the next, all in perfect order, until in the end we see another human being made in the image of the Divine.

# PREPARING FOR YOUR BABY

Planning for a baby is such a lovely experience for both parents. It is part of the real fulfilment of marriage These nine months of waiting should be a joyful time, a time of happy planning for the future family

This is the time when nature is doing a most remarkable job, and you must do your part to keep yourself strong and healthy Pregnancy is not something to be afraid of, especially today Child birth is far safer than in the days of your grandmother Thanks to the amazing advances of modern medical science, even the normal discomforts of labour are no longer a problem to most young mothers.

## *Signs of Pregnancy*

How do you know you are pregnant? If you are 'regular,' the first indication will be the missing of your monthly period At the same time, you may feel unusually cheerful, and your breasts may begin to enlarge. Some women who are tense and nervous may have a slight feeling of nausea in the morning Even a little vomiting at this early stage is not uncommon or serious Nature is just making a few normal adjustments, and this will soon pass

If you skip your next period, it is time to see your doctor He will want to carry out several laboratory procedures, such as a complete blood count and urinalysis. He will also listen to your heart and lungs to be sure you are in good condition He will check your height, weight blood pressure, and pulse. He will also want to know what type of blood you have, and whether it is Rh positive or Rh negative, for this could affect the baby Your doctor should be well qualified and highly respected in the community, for this is one time you need expert medical help

You should see your doctor at least once each month for the next four or five months and after that every two weeks until the baby comes. Each time your urine should be examined to make

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tired In later pregnancy it is well to lie down and rest for a few minutes in the morning and in the afternoon Walking will serve as an excellent tonic for your whole system

*What About Smoking?*

Cigarette smoking is not wise during pregnancy—nor for that matter at any other time in life The smoke from even one cigarette may increase the speed of your baby's heart as much as 25% above its previous rate Tobacco smoke contains certain poisons such as nicotine. These find their way into your blood stream and affect the baby If you are in the habit of smoking it would be wise for you to stop If you have never started, don't start now Advice on how to stop smoking will be found on page 310

*Alcohol?*

*Alcohol* in any form places an added strain on your kidneys and liver, especially during pregnancy You should avoid alcohol and all other powerful drugs and narcotics. Remember, even beer contains enough alcohol to affect both you and your baby

*What About Sex?*

Normal marital relations are probably safe during pregnancy until the last few weeks. However, if at any time sexual intercourse is uncomfortable, it is wiser to refrain. Certainly if you have any pelvic infection it should be cleared up without delay

*Care of Your Teeth*

Dental decay is common during pregnancy, particularly if your diet is lacking in calcium. Be sure to see a good dentist early in pregnancy and have needed repairs made on your teeth. Tooth extractions should be done under local anæsthetic. Good dental care now will save your teeth and your appearance.

*Clothing*

Never wear anything tight or uncomfortable during pregnancy Your clothes should *hang from the shoulders* Avoid tight bands

around the waist or legs at this time. Comfortable low heeled shoes are best. High heels may throw you off balance, especially during the later months of pregnancy Lower heels are always advisable.

*Bathing*

Take your usual daily bath A shower or a sponge bath are equally good In later pregnancy a shower may be more practical Be careful not to slip Do not use any vaginal douche unless your doctor tells you to Don't pamper yourself Pregnancy is a perfectly normal process. It is the most rewarding of all human experiences. Just relax and enjoy yourself You have nothing to fear, for nature has provided everything for you

*Danger Signals*

If at any time you do not feel well, contact your doctor at once, especially if you are in pain *Vomiting* is fairly common in early pregnancy, but rare during the later months Be sure to see your doctor if you notice anything unusual, such as *swelling* of the face, hands, or feet Dizziness and spots before your eyes could be dangerous near the end of pregnancy This is no time just to hope for the best. If you think anything is going wrong, see your doctor without delay

*Your Baby's Room*

If possible, set aside some part of your house where your baby can be by himself He will always sleep better in a place of his own, where he is less likely to be disturbed His room should be well ventilated, but he should not have to sleep in a draught.

The furnishings in the room should be simple, with a colour scheme that is restful to the eye. Baby's first bed could well be a large laundry basket well padded and comfortable, giving him room to squirm and kick and develop his growing muscles. Later he can have a full-size crib with one side that can be raised or lowered. The mattress should be firm, to give his back good support. Some water proof material should protect the mattress. He will also sleep better without a pillow

Beside Baby's bed should be a comfortable chair in which you can relax while feeding the baby A foot stool will add to your com

fort. You should also have a small table or chest of drawers to hold the clothes and other things you will need when caring for the baby

For further convenience, arrange for a small box or a tray, about three inches deep, to hold the articles for Baby's bath Here are the main items it should contain

- Baby cream or lotion
- Olive oil or baby oil
- Covered soap dish
- Mild, pure soap
- Wash cloths
- Safety pins assorted sizes
- Nursing bottle for boiled water, with a sterile nipple, covered
- Applicator sticks, tipped with cotton, sterile
- Sterile gauze squares in covered jar
- Bath towels, three
- Bath apron, large

Other items that should be kept in some handy spot are small rubber syringe for enemas when needed, small cloth-covered hot water bottle for baby's exclusive use, and a rectal thermometer for taking his temperature. (During the first four years it is best to take his temperature rectally, never by mouth )

In warmer seasons babies usually get along well with very little clothing If your house is warm, you will not need many clothes to keep him comfortable You don t have to over dress him to keep him healthy His most important items of clothing are a few shirts and pads or diapers of light material preferably cotton You should also make (or buy) six small blankets or flannel squares about thirty-six inches square for his bed. The lighter the material, the better The number and weight of blankets depends on the climate in your area.

*Home or Hospital?*

Many women prefer to go to hospital to have their babies. This is probably the best and safest method, provided the hospital maintains good standards of cleanliness and professional care. But whether at *home or in hospital*, you should be well prepared with all the things you need, such as two or three changes of clothes, slippers, comb and mirror, toothbrush and paste talcum powder, soap, some flannel pieces, etc

If you plan to have your baby at home, select a well lighted room where you will be comfortable and happy Be sure the furniture and everything else is thoroughly clean and in order before your time comes Have the walls and ceiling scrubbed or painted at least two weeks before your baby is due to arrive. Your doctor will advise as to what items you will need

Near the end of your long waiting period, you may notice that your breathing is easier Your baby has probably moved into a lower position ready to find his own way out into the world This is the time for you to relax and rest as much as you can There is really nothing for you to fear Just before you is real fulfilment and satisfaction, a most wonderful and rewarding experience—the birth of a lovely new baby!



After nine long months of careful preparation and active growth, a new life enters the world.

CHAPTER 21

# HOW BABIES ARE BORN

For nine long months your baby has been actively growing in the uterus Now has come the time for him to step out into the world for himself

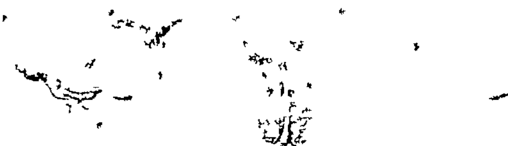
To make this possible, nature has been preparing your own pelvic organs by softening the tissues in some mysterious manner so that they can stretch to allow the baby through These are not sudden changes, they have been going on for the past several months When all is ready, something inside you gives the order and the powerful uterine contractions begin. This is referred to as 'labour' It is well named, for you certainly have some exciting work ahead of you!

At first you may feel a vague discomfort in the abdomen, followed by tightening of the muscles. These contractions, mild at first, later become stronger and more regular Try as you will, you cannot control them, nor can you hurry them along These early contractions last only a few seconds Nature is busy just now smoothing out the passageway for the baby As labour progresses these contractions become more frequent and may last half a minute or more. There may also be a slight show of mucus, perhaps streaked with a little blood This is not abnormal However, if there is a lot of bleeding, you should notify your doctor at once

Some time during labour the amniotic sac, or 'bag of waters,' will rupture. The sudden rush of fluid prepares the way for the baby and is part of the normal process of birth Now that labour has started the nurse will probably give you an enema and also a bath to make you feel more comfortable.

### *First Stage of Labour*

You are now in the first stage of labour The baby is moving into the proper position, and each contraction helps to open the way Try to rest as much as possible between contractions. You might



Top NORMAL FEMALE GENITAL ORGANS Picture shows sperm cells (great magnified) entering cervix and swimming through uterus and tubes toward ovum the large single cell in the tube at the left It has just been released from the ovary Note the large cavity in ovary where the corpus luteum will develop later Here the hormone called progesterone is produced.

Bottom FERTILIZED OVUM has moved down the tube and attached itself to the inside of the uterus. The placenta has already begun to form inside the uterus. The inset at lower right shows the general shape of the embryo at this stage (greatly enlarged)





BABY AT FIFTH MONTH Large head indicates rapidly developing brain. Fingers, toes, and larger joints are now visible.

as well conserve your energies by letting things more or less take their course.

If labour seems slow you may get up and walk around the room for a while Stretching your muscles will improve the circulation in your legs. It will also relieve tension Remember you have nothing to fear If you are strong and healthy, you are quite capable of carrying this job through to the end

How long will it take? This is hard to say With your first child you may be in labour from twelve to twenty four hours. With later babies, the time may be shortened to six hours or less. However,

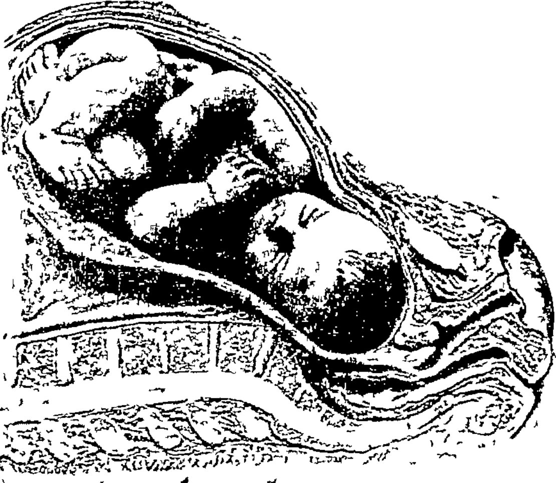


LAST WEEKS OF PREGNANCY Baby has now turned over and assumed the normal position prior to birth. Note the well formed eyes, nose lips, chin, and extremities. Large umbilical cord and placenta on the left.

you will be resting and perhaps even sleeping most of the time. The more you can rest, the better for yourself, and also for the baby

*Second Stage of Labour*

As the baby moves down into the birth canal the contractions become harder These heavier muscular contractions help to open



FULL-TERM BABY READY TO BE BORN Note the perfectly formed fingers, toes and facial features. Babies normally come head first. The head opens the way for the rest of the body to follow

the cervix or door of the uterus By this time your contractions are lasting longer and coming more frequently If the pain is severe, the doctor may give you a light anæsthetic to help you during the last few moments However, the less anæsthetic you demand the better for both you and the baby You have a thrilling time ahead of you just now It would be a pity to sleep through that magic moment of your baby's first cry and miss the joy of your own wonderful accomplishment

As soon as your baby has been delivered, the doctor holds him up by the feet for a moment to allow the fluids to drain out of his mouth and throat. The next instant he lets out a loud cry—one of the most beautiful sounds to your own ears and to those who are attending you Now he is able to live on his own and breathe for himself Soon his skin changes to its own natural colour, and you have another member in your family to love and care for

But all is not over for you There are other important things to do Just now the doctor is busy clamping and tying the umbilical cord about an inch from the baby's abdomen The nurse wipes the baby's eyes and puts in a few drops of a special penicillin solution or some other safe antiseptic, to protect his eyes from some infection he might have picked up while passing through the birth canal This is to prevent blindness and injury to the delicate structure of the eyes

*Placenta or Afterbirth*

Sometime within the next ten or fifteen minutes the placenta —or "afterbirth'—comes away If there is any delay, the doctor

**NORMAL POSITION OF BABY** passing through birth canal As the uterus contracts, the head moves downward opening the way for the rest of the baby to follow Amniotic fluid provides normal lubrication to aid in the delivery Baby's skull bones overlap to reduce size of the head during the birth process.

may gently squeeze or massage the uterus through the skin of your abdomen This keeps the uterus firm, and helps to control bleeding

After the placenta has come away, the doctor carefully examines it to be sure no fragments are left behind These must be removed, or they could cause further bleeding and perhaps a serious infection

Now at last you can have that long rest you so much deserve This is the time to relax and regain your strength, so take it easy and enjoy these moments of quiet rest. From time to time the nurse will check your pulse to make sure everything is all right. If there is a hard lump down in the middle of your abdomen she will be satisfied This means that the uterus is firm, its muscular walls are clamping down to control any bleeding

**BABY'S HEAD IS DELIVERED** Doctor checks to see if cord is around neck. With gentle traction,the baby now passes out quite easily Cord is still attached to placenta. After cord is cut and tied the baby is placed in crib Doctor carefully checks the baby's nose and mouth to be sure he is breathing normally Placenta usually comes away within a few minutes.



If the nurse finds a soft, spongy mass she will gently rub or massage the lower abdomen to stimulate the muscles to contract again. She must also be sure you are not losing any large quantity of blood A small amount of bleeding is quite normal for the next hour or two, but any large loss of blood must be reported immediately to your doctor just in case some serious complication is setting in. Remember, this is no time for amateur opinions. Good medical care is always the least expensive in the long run

### *Breech Baby*

Most babies are born in the head first position Occasionally however, one may try to come feet first, or perhaps shoulder first. If the birth canal is adequate and the baby is small there may not be any serious difficulty because of this so-called breech position If the baby is large, and the birth outlet small, this could be dangerous to both you and the baby In times like this you must rely on your doctor His skill and training are vital to you in any such emergency

However, if you are far from professional help when your baby comes, any intelligent person can help you by studying the pictures of normal and abnormal births as shown on these pages. But it is better for you to have real professional help, rather than to risk the baby s life, or perhaps your own. Do not travel far from home during the last few weeks of pregnancy

### *Now Your Baby Is Here*

You can relax and let others help you Do not be in a hurry to get up too soon You will have plenty of time for all those extra things around the house that you have been planning It is much wiser for you to rest quietly for a few days and regain your normal strength. Your family will appreciate you much more. It will do them good to help you during this time of recovery

This is a wonderful time for you and for all the family You have many busy days ahead of you But they can be days full of joy and accomplishment. A young mother caring for her own baby, and surrounded by her dear ones and friends, is truly one of the loveliest sights in all the world



A well fed baby is a happy baby

Chapter 22

# FEEDING YOUR BABY

Caring for and feeding a young baby is a responsibility and a privilege. To watch his body grow and his mind develop always brings satisfaction that only a successful mother and father can know.

As a parent, you also must grow and learn along with your baby. To succeed in your new and challenging task, you must give him courage and strength to face the world for himself. Too much babying is bad for any child. He needs your love and understanding, but he must also develop confidence in himself. In other words, he needs mother love, but not "smother love."

Stern, rigid rules are not necessary in bringing him up. Treat him as a human being, not as a machine. Don't watch the clock too closely in feeding and caring for him. Remember, millions of babies were brought up very well long before alarm clocks were invented. So, relax a little, and give your baby a chance to grow in his own way as much as possible.

And do not be too concerned about other people's opinions. You can never please everyone, regardless of how much you may try. In caring for your baby, you must draw your own conclusions and act accordingly. If you have any questions or problems, it is always wise to discuss them with your doctor.

### *Baby's Growth*

Babies grow fast. For the first few days after birth a baby may lose a few ounces, but he is usually back to his birth weight by the tenth day. After this he should gain from four to seven ounces a week for the first three months, provided he gets enough to eat. By the time he is six months old he should be double his birth weight, and at the end of one year he should have tripled it. This fast rate of growth obviously demands a nourishing diet.

*Breast Feeding*

If possible, plan to feed your baby yourself True, there are many fine formulas on the market, but human milk is best for human babies. If you nurse him yourself, he will probably have fewer stomach upsets, less diarrhoea, and almost no constipation. He will also have less skin trouble. Breast feeding has other important advantages as well You will feel better yourself, your pelvic organs will return to normal more quickly, and your skin will improve. Many of the loveliest women in the world have breast fed their babies This is one of nature's ways to keep a woman young and beautiful

Breast feeding is so much easier than bothering with formulas and bottles. But you must be sure to take sufficient fluids yourself every day, particularly milk. The calcium in the milk is needed for your baby's bones and teeth, and also to protect your own system. You can take milk in the form of custards, cream soups, milk drinks, and in many other ways. Your diet should also contain a liberal amount of vegetables and some extra protein in the form of beans, dhals, peas, eggs, and cheese. You may also add some lean meat, if you so desire.

How often should you feed your baby? As often as he desires, certainly at least every three or four hours The more milk he gets from the breast, the more you will have, provided your fluid intake is sufficient.

How can you tell whether he's getting enough? Here's a simple way to find out Weigh him just before you feed him, and again right after The difference in the weight will let you know how many ounces of breast milk he is getting at each feeding If he fails to show a weight gain of four ounces each week, you may need to give him one or two bottles of formula each day This should only be done *after* he has nursed his full time at the breast.

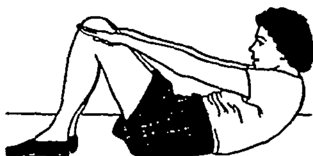
If your breasts become swollen and painful, apply warm, moist packs two or three times a day Follow the directions shown on pages 96 and 97 Take care not to burn the skin. Gentle heat will usually relieve any congestion in the breast.

If the nipples become sore, carefully sponge them with rubbing alcohol, and then rinse with clean water If they feel heavy, use a breast binder for protection.

*Keeping Physically Fit*

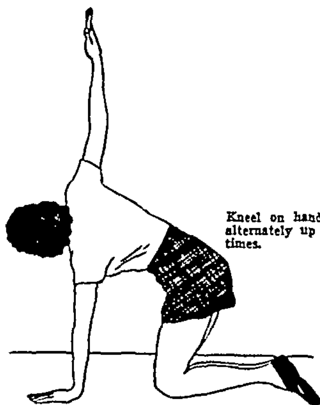
Every woman likes to feel proud of her figure, especially after she has had a baby A fat and flabby figure is no credit to anyone. Too many women lounge around, avoiding any real effort, while at the same time eating too heartily The sensible woman will not do this She will avoid overeating and will take the necessary exercises to rebuild her figure, soon after the baby is born Here are a few exercises that you can do at home

Lie on your back with knees bent. Inhale slowly expanding chest and abdomen. Exhale slowly, drawing abdomen in. Repeat 10 times.



Raise head and shoulders, hold chin toward chest, stretch arms forward, raising back and shoulders, exercising all muscles of back and abdomen. Repeat 5 times.

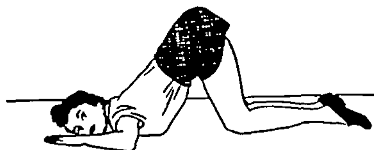




Kneel on hands and knees, stretch arms alternately up toward ceiling, each arm 5 times.

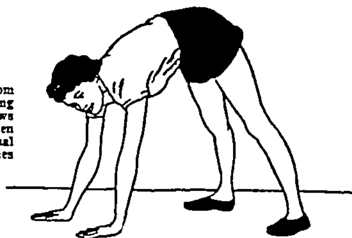


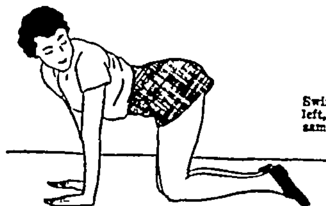
Lie on back, pull knees toward chest, then lower legs and thighs to floor Repeat 10 times.



Assume "knee-chest" position. Kneel down, bending forward until chest and face are resting on bed or floor Remain in this position 5 minutes or more twice daily

Walking around the room on all fours, keeping knees and elbows straight, will strengthen back and abdominal muscles. Repeat 3 times a day





Swing your body to right and left, holding waistline in at same time. Repeat 10 times.

### *Preparing Your Baby's Formula*

If you do not have enough milk, or if you happen to be sick, you will have to feed your baby by formula This involves more trouble than breast feeding, because the formula must be mixed in the right quantity When fed to the baby, the mixture should be room temperature

Today there are a number of excellent baby formulas available from which to choose. Your doctor will advise you on this Most baby formulas are made up from some form of cow s milk which has been specially prepared for this purpose

Powdered milk has some real advantages over fresh cow s milk It is protected well in sealed containers It is more easily digested than ordinary cow s milk. In making up your own formula you merely add two ounces of boiled water to each level tablespoon of powdered milk The directions for doing this are usually printed on the container

Breast milk is sweeter than cow s milk This means that to approximate the taste of human milk you must add to a formula prepared from powdered milk some sweetening substance. For this purpose you can use brown sugar, milk sugar, honey, corn syrup, or whatever your doctor may recommend

For a very young baby, here is the standard formula sufficient for one day

7 tablespoons powdered milk
14 ounces of boiled water
2 tablespoons of honey, glucose, lactose or other sweetening

The baby will usually take about three ounces of formula with each feeding at first, gradually increasing the amount as he grows.

If you use one of the specially prepared formulas, just follow the printed directions on the label Don t be too rigid about the time of feeding The baby will let you know when he is hungry Be careful not to contaminate the bottles, lest in so doing you jeopardize your baby's health To avoid this, be sure to clean the bottle thoroughly after each feeding and boil it along with the rubber nipple for about two minutes to kill germs. The greater care you take with the bottles and nipples the less trouble your baby will have with digestive upsets.



In your home you may not be able to practise the sterile procedures used in a hospital. But you must take all possible precautions in caring for your baby

It is important to always keep your baby's utensils scrupulously clean free from flies and vermin Also be sure your own hands are clean Use plenty of soap and water, and then rinse them with clean water You would be surprised how many germs can be found on clean hands

If you prepare the baby's formula from powdered milk it is wise to thoroughly clean the top of the can before opening it This will prevent germs falling into the baby's food Always use *boiled* water when preparing the formula Following a few simple steps such as these may save you many trips to the doctor

During feeding always hold the baby in your arm preferably in a *sitting* position This will protect his ears and nasal passages from infection Let him take as much food as he wants but *no more* Over feeding always causes trouble Hold him close to you while feeding

to give him a feeling of security and he will soon look forward to meal times with delight

After feeding, lay the baby over your shoulder for a few minutes in a semi upright position, to bring up any excess air he may have swallowed Then lay him down in his bed, preferably on the right side Let him sleep as long as he will, especially during the first few weeks Keep yourself calm and quiet so he will feel that the world is a friendly place The love you give him now, he will return to you through all the days of his life.

### *Colic*

Colic is a painful stomach condition probably due to the baby having swallowed too much air while feeding This distends the stomach and interferes with normal digestion When the baby is lying flat he cannot expel the air, but if you hold him in a vertical position, the swallowed air usually comes up fairly quickly and this relieves the pain Experienced parents have known this for a long time, for colic is no new problem

Some years ago a group of physicians in public health service noted that colic in infancy was very rarely seen among the Navaho Indians of North America, owing apparently to the Navaho habit of carrying their infants in a vertical position The baby is bound securely to a well upholstered board placed at his back, leaving his arms and legs free This upright position allows the baby to bring up the swallowed air without any difficulty Noting this the doctors devised our modern plastic carrying boards as a useful modification of this old Navaho idea This is more comfortable for both mother and baby and does help to avoid some complications of colic

When colic is a real problem with your baby, place two firm pillows beneath the crib mattress at the head end, so that the mattress will be steep enough to raise the baby's head well above the level of his feet but not so steep that he slides down He may be more comfortable in this position

Before laying the baby down be sure to spend enough time *holding him in an upright position* and '*burping* him Best way is to hold the baby with his head up, applying very gentle pressure to the lower abdomen either with one hand or your shoulder, while gently patting him on the back with the other hand. Remember

when Baby cries he swallows more air This means he must be calm and composed before being able to expel it

Gently rocking him while walking in the room will help to keep him quiet and thus release the tension in his gastrointestinal system Bottle fed babies need more attention Be sure the nipple is clean and that the hole is neither too large nor too small. A nipple with a large hole will allow him to take too much milk at a time while the very small hole may cause him to suck extra hard and this may increase the amount of swallowed air

Rubber nipples with large holes are best discarded If the hole is too small it can be enlarged by removing a small portion of the rubber Persistent crying from colic may mean the baby needs a change of formula or perhaps some medicine to relax the spasms in his stomach Talk this over with your doctor Remember, try to keep the home atmosphere quiet and calm, for all babies react to nervous tension and stress A quiet gentle approach to life will do much to solve your problems

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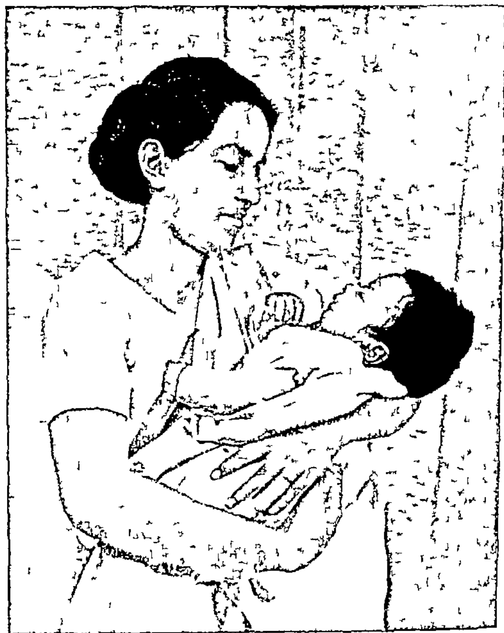
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A sweet, new blossom of humanity
Fresh fallen from God's own home to flower on earth.
—*Gerald Massey*

# KEEPING YOUR BABY WELL

A baby grows fast, almost too fast, for at times you will feel you would like to have him small a little longer. But each week there will be something new as he learns to do new things. Playing is very important, for this is how he learns to use his hands and feet. Let him move as freely as he can. Do not restrict him unnecessarily.

To keep your baby well, be sure that he is always clean and well cared for. A clean baby is more likely to be healthy and happy. If other children want to hold your baby or play with him, be sure their hands are clean and that the children themselves are free from colds and other infections. Germs can be dangerous but with reasonable care, your baby can be protected and enabled to build up a good resistance against disease.

## *Bath Time*

Your baby's bath time should be one of the happiest hours of the day—for him and also for you. This is the time when he learns clean habits that will stay with him throughout life. The best time for bathing him is just before his mid morning feeding. Clean and relaxed, he will then enjoy his food more.

Be sure to have everything ready before you begin. The room should be warm and free from draughts. You will need a low table, a chair, a pan of warm water, a cake of mild soap, a soft washcloth, a large bath towel to cover him, and a small one with which to dry him. Fill the pan about half full of warm water. Test the temperature with your elbow to be sure it is comfortable.

Now gently wash the baby, taking care not to scratch his skin with your finger nails. Do not allow soap-suds to get into his mouth, nose, or eyes. Handle him carefully, for a wet baby can be slippery. After cleaning him thoroughly, let him kick and splash for a few minutes to develop his muscles. As he grows older he can remain longer in the tub, for this is something he will enjoy. But *never leave*

*him alone* in the tub He could slip under the water and drown!

After bathing him lift him carefully and dry his skin with a soft towel Be careful not to twist or jerk his arms or legs You should *never lift a child by only one arm* Small children's arms are not strong and putting all their weight on one of their arms may so strain the *ligaments and nerves as to damage them seriously* Always pick small children up with a two handed grip

Dress him suitably, *according to the season His clothes should* be loose enough so he has room to kick and squirm and develop strong muscles

### *Thumb-sucking*

Don t be too concerned if he wants to suck his thumb This is one way of satisfying his hunger and giving him a feeling of comfort and well being Some adults chew gum for the same reason!

If he sucks his thumb a lot it may be time to increase his food, or perhaps give him a suitable toy In any case don t worry too much about thumb-sucking This is normal, and usually quite harmless. He will probably soon grow out of it

### *Constipation*

Breast-fed babies rarely are constipated Babies on formula may have more difficulty Perhaps they are not receiving enough liquid in their diet. If the stools are hard, just give the baby more boiled water and add a teaspoon of honey or sweetening to it

For severe constipation, try a *glycerine suppository* inserted into the anus although this is not a good habit to start Many older people are troubled *with constipation because of improper* laxative habits that were developed during their early years Try to be patient and avoid tension in the home as much as possible. If you allow enough time, nature will usually take care of the constipation problem

But there are times when you may have to give the baby an *enema* This is how to do it. Secure a small rubber syringe with a soft tip Wash it thoroughly, then fill the syringe with warm water Add a little lubricant, such as vaseline, to the tip, and gently insert into *the baby's rectum Squeeze very carefully,* allowing the water to fill the rectum Then remove the syringe If only water comes

out, repeat the treatment in about twenty minutes If there is any blood in the stool, report this at once to the doctor As far as possible, avoid giving enemas.

*Diarrhœa*

One or two loose, watery stools may not be significant. They are rather frequent during the earlier weeks and months of life But if they come too often you should consult your doctor If your baby has a bad case of diarrhœa, this is no time for simple home remedies Large loose stools may drain much of the essential water from the baby s system. Such fluids must be replaced as soon as possible

Diarrhœa is really not a disease in itself It is a disorder that may arise from many different causes It is most frequently due to contaminated food Be sure the baby's bottles and utensils are scrupulously clean and sterilized before you use them If you are breast feeding the baby you may be taking too much laxative yourself Some of this finds its way into the milk, causing trouble for the baby

Whatever the cause of the diarrhœa, omit several ordinary feedings and give just boiled water with a little honey or other sweetening Then gradually return to the regular dietary programme If the baby seems ill take him to the doctor without delay

*Vomiting*

An occasional spell of vomiting is nothing to be alarmed at It may be due to over vigorous handling of the baby But persistent vomiting can be serious. It quickly results in severe dehydration A young baby cannot afford to lose all those important body fluids

Vomiting may arise from many different conditions Among the more serious are certain malformations of the digestive organs, or perhaps an injury to the skull during birth But these are very rare A far more common cause of vomiting arises from the baby s swallowing air and not being able to bring it up again Sometimes the clothing may be too tight around the abdomen Vomiting may also be the first sign of some acute infection in the digestive tract or elsewhere in the body In any case contact your doctor without delay, especially if the baby has a fever He just cannot afford to lose much fluid

### *Taking Baby's Temperature*

Every mother should know how to use a rectal thermometer This is how it is done First, wash the thermometer in *cool* water Hold it carefully and shake the mercury down into the bulb Then apply a little vaseline or other lubricant to the bulb end and gently insert the thermometer about one inch into the baby's rectum. Hold it there for at least *three minutes* Remove it and wipe it off with a piece of soft paper or cloth You can then read the baby's temperature by noting how high the mercury rises in the tube Normal body temperature in the rectum is 99 6° F or 37 3° centigrade. If it is about one degree above the line marked as normal on your thermometer, you need not worry too much Just take the baby s temperature again in one hour If the temperature rises over 100° F, take the baby to your doctor

After using the thermometer, carefully wash it with soap and cool water, putting it in a safe place for future use. Always note down the temperature, particularly if it is above normal If the baby seems ill, take the temperature at least every four hours

### *When Baby Has a Cold*

Colds are caused by viruses which open the way for other germs to enter the body Most colds start in the head or throat, and later involve the bronchial tubes and lungs Usually the first symptom is a runny nose and perhaps a bout of sneezing

**Treatment:** Keep the baby in a warm, comfortable room with fresh, warm air day and night Don t worry too much about his diet for the present. Just be sure he gets plenty of boiled water, preferably lukewarm Give him plenty of fluids and fruit juices Keep his nose clean and keep visitors away from him as much as possible If the cold does not clear up in a few days, take him to your doctor

### *Ear Trouble*

Ear trouble often follows a bad cold Sometimes the child will refuse to eat and may pull at his ear This means real trouble. *Never neglect a bad ear* You must seek good medical advice without delay

Many cases of *deafness* in later life can be traced to ear infections during the early years

Most doctors use antibiotics and nosedrops to relieve the con gestion and clear up the infection If the child still complains of ear ache, take him to your doctor Don t delay in seeking medical help, and don t wait until the middle of the night before doing something Delay can be dangerous especially with head colds that are complicated by ear ache While waiting to see the doctor, apply a warm water bottle (well covered) to the painful ear for several hours at a time Another time honoured remedy is to heat up a small bag of salt, cover it with several thicknesses of cotton or wool, and apply to the ear

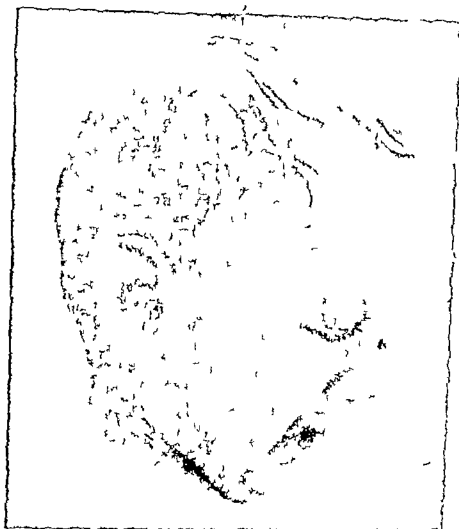
*Croup*

If the child s breathing becomes difficult, and he seems to be struggling to get his breath, you must do something at once to relieve him Most doctors advise the use of warm, moist air to restore the normal humidity of the room Boil a pan of water on a hot plate or primus in a corner of the room, adding a few drops of eucalyptus or menthol This will moisten the air and help the child to breathe more readily Even an old teapot or kettle can be used to provide steam inhalation, as suggested on page 91 Don t leave the baby by himself during the treatment. Be sure some responsible person is there to watch him Young children are easily injured As soon as the treatment is over, change him into warm dry clothing

*Convulsions*

Nothing is more frightening to any parent than seeing his child have a serious convulsion The attack is usually very dramatic, but lasts only a few seconds. The baby's eyes roll upward and the body twitches violently Most convulsions in young children are related to some *infection* in the nose and throat, or perhaps the onset of some more generalized childhood infection Here is what to do

**Call your doctor at once** While he is coming place the baby in bed face down to allow the secretions to drain from the mouth. Cover his body with a cool wet towel and place a small ice bag on the head



A frequently crying child is likely to be a sick child.

Take the temperature rectally but not when the child is actually having a convulsion *Save any stool specimen* for the doctor to see. Draw the blinds and keep the child quiet If he has a high fever, sponge him with tepid water

When a child has convulsions but no fever, the trouble may be due to some form of *epilepsy* Take the child to your family doctor for further diagnosis and treatment, as suggested in chapter 45

Fortunately, babies rarely die from a convulsion, but they should always be given proper medical care without delay

### *Skin Trouble*

Clean skin has great powers of resistance to germs But an irritated skin is often a cause for real trouble in the young child Chafing of the skin is more likely to occur where two moist areas meet, such as in the groins or buttocks, or under the arms Skin reactions are more common today because of the many new fabrics in use. Babies often develop skin rashes because of irritation from the colouring materials in these fabrics Water repellant chemicals in materials are often quite dangerous to those with skin allergies It is wise to *wash* each new item before you allow your baby to wear it next to the skin If a rash occurs after the baby has worn some new article of clothing be sure to wash it several times before using it again. If it still causes a rash, discard the article completely

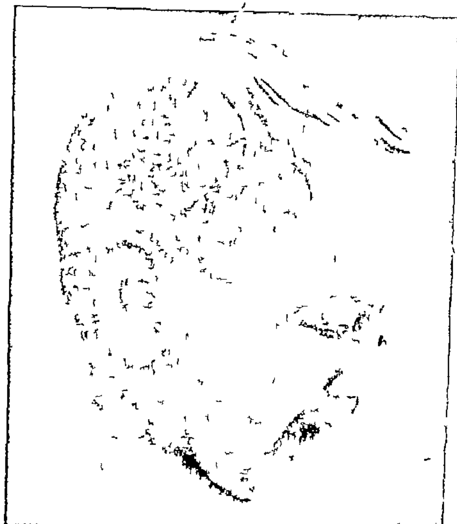
Bland soap and soft water are best for laundering baby clothes. Strong detergents may cause trouble in the skin

**Diaper rash** usually arises from some chemical irritation due to certain germs that are present in the baby's stool These germs break down the urea into ammonia, which burns the skin

**Treatment** Boil the diapers to kill the bacteria Then rinse the diapers at least *four* times in soft, clean water and dry them in the sun. As for the baby, keep its skin clean and dry It is well to apply some mild zinc oxide ointment to any sore spot once or twice daily Be careful about using powders on the skin some of them contain zinc stearate which is particularly dangerous to babies.

### *As Your Baby Grows*

When Baby is able to sit and crawl he should have a playpen, or some special corner of his own with toys suitable to his age. Be sure there are no sharp points on these toys or any loose objects, such as buttons, that might be pulled off and swallowed. Lead paint is highly poisonous to children. Unpainted or plastic toys are always safer for young children, who always tend to put things in their mouths



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*Companionship*

As your child grows older he will need the companionship of other children After all he must learn to get along with other people. Adults can never fully take the place of children in the life of a child So be sure he has plenty of children to play with However, be very careful not to foster feelings of jealousy among your children. Give them each an equal share of your love and interest. Family favouritism is not fair It always brings unhappy results for all concerned

Regular sleep is also important to health Be sure the bed is warm and comfortable, with plenty of fresh air circulating in the room A young child will usually sleep better without a pillow The bed covers should be light and adequately warm His night clothes should be made of cotton, for wool may irritate the skin and keep him awake

At bedtime a child should be put to sleep in his own bed Spend a little time with him every evening talking and singing to him Even though he may not understand all your words, he will appreciate the tones of your voice Listening to his mother's goodnight song will become one of the loveliest memories that he will carry throughout his life.

*Toilet Training*

Babies are wonderful to have around, but they always bring certain problems and responsibilities, particularly regarding toilet training Every mother naturally looks forward to the time when her child will care for his own bowels and bladder What a joy to be free of that burden! But do not attempt toilet training too soon Proper control of the bladder and bowel is usually not attained until the child is in his second or even third year Toilet training is one thing you should never try to hurry

If you are impatient with him there is bound to be trouble not only now, but perhaps later in life. Don't scold the child or become restless Just give him time to function normally, if he can And when he does succeed in pleasing you be sure to compliment him All young children appreciate compliments.

Let me add a word of caution *Never use suppositories or enemas* unless your doctor so orders These things have no place in the normal training of a young child As far as possible, avoid all laxatives, for they may ruin the normal habits of your child A little patience now may save you—and your child—many nervous problems later on.

Toilet training should be a happy time, but the child must understand what is required of him If he has soiled himself, just clean him up without making any comments These accidents are always more likely to occur when the child is tense, or when he is excited because of visitors Naturally this is the time when you want him to be on his best behaviour! Be careful not to have him upset at such times

Keep him calm, and he will learn to take care of himself much sooner Remember there is nothing easy about growing up There are so many new things for every child to learn Be kind and patient with him and he will give you the full measure of his love and devotion as long as he lives

*Bedwetting*

By the time a child reaches the age of two he can usually keep himself dry during the day However, it may be another year or more before he can keep dry all through the night. Even then, the best trained child may fail to live up to expectations on certain occasions when he is highly excited Bedwetting accidents are common during the early years A wise mother will not shame a child or punish him She will just change him without comment The accident itself is punishment enough Just treat him sensibly, and he may soon learn to take care of himself

Older boys and girls may also have occasional problems at night, especially when sleeping in a strange bed after a highly exciting evening Don t make the child feel guilty This may cause him to lose confidence in himself and rob him of his self respect. Just be sure he has plenty of sleep and rest and a pleasant home environment Here are several suggestions to help overcome bedwetting

1 **Reduce the amount of fluid** just before the child goes to bed. Don t be unreasonable, especially on a hot night, for the more concentrated urine may be irritating the child and causing him to lose control of his bladder during sleep

2 **Don't be overanxious** about this problem Making an issue of it may only prolong the problem Try to keep the child relaxed, even if he is a little slow in outgrowing this habit.

3 **Take him to the toilet** before you go to bed yourself, especially if this is a frequent problem

4 **Be sure to reward him** in some suitable manner when he succeeds in keeping dry at night Do not punish him when he fails, but when he succeeds give him some special privilege which he values highly

5 **Give your child a happy home** of which he can be truly proud Try to remove all friction within the family This may help to solve not only the bed wetting but all other nervous problems as well

*Vaccinating Your Child*

Years ago millions of babies died every year from such serious diseases as smallpox, polio, diphtheria, whooping cough, and tetanus. Today all of these conditions can be prevented, thanks to immunization Vaccination offers protection against smallpox The baby should be vaccinated for smallpox at one month of age if the mother has not been vaccinated, if she has been, the baby may be vaccinated at three months of age A combination injection known as DPT Polio is available for protection against diphtheria, pertussis (whooping cough), tetanus, and polio Other serious diseases such as typhoid, typhus, and yellow fever can also be prevented by periodic inoculations. Here is the time schedule for these preventive shots

| | | |
|---|---|---|
| **First DPT-Polio shot** | — | Two or three months of age. |
| **Second DPT-Polio shot** | — | One month later |
| **Third DPT-Polio shot** | — | One month after the second. |
| **Booster DPT Polio shot** | — | At eighteen months of age, and repeated at five years or just before beginning school |
| **Oral Polio Vaccine** | — | Use this in the dosage recommended by your Public Health officials. |
| **Smallpox vaccination** | — | At three months of age and repeat every three years till adult life. |

| | | |
|---|---|---|
| **Typhoid Paratyphoid** | — | Vaccination should be given to all children after age of one year in areas where these diseases are prevalent, with booster shots annually or when travelling to distant places |
| **Cholera** | — | Inoculated after age of one year Booster every six months |
| **Typhus, Yellow Fever** | — | Vaccinations are advisable wherever these diseases are prevalent Follow the directions of your local Public Health authorities |

Chapter 24

# WHEN CHILDREN QUARREL

The moment a baby comes into the world he becomes the centre of his family's attention. Everyone is anxious to wait on him and fulfil his every wish After a year or two of this he naturally grows accustomed to getting almost anything he wants But just about this time his whole world suddenly changes Perhaps another baby has arrived or he realizes he is only one of several children in the family Is it any wonder that he resents this sudden intrusion into what he *believed was his own private world?*

Unfortunately, some parents are foolish enough to play favourites, giving one child more attention than another Family rivalry is the natural result, and soon no one is happy Certainly a wise parent *will avoid this kind of thing*

If there is one thing children desire more than anything else it is fairness and equality *Children hate favouritism,* either in school or at home Every child deserves a fair deal, regardless of his age, and *certainly each child deserves the attention and constant love of* his parents

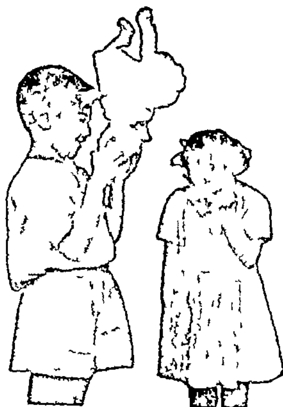
### *How Quarrels Start*

Why do children quarrel? Numerous reasons might be mentioned, but the central one is that children always find it difficult to think of others first. They are so anxious to succeed that they just want to have everything to themselves. How does one solve this problem? One mother with two growing boys found a good way to do this and at the same time to teach a valuable lesson Whenever she baked or bought a cake each of the boys would fight for the largest share. One day when they were quarrelling over how large a slice they would have, she allowed the older boy to cut the cake and then told the younger one he could take the first choice! It was a lesson they never forgot. Because of a sensible mother, they soon learned to be fair to each other and to the rest of the family as well

Suppose you see one child hurting another, what should you do? Step in and hit him back? Better be careful It is so easy for children to misunderstand the actions of adults Most active children can take care of themselves fairly well Perhaps the youngster just needs to let off a little steam Usually it is wiser just to watch and make sure nothing serious is happening

However, if one child *persists* in hurting another, you may have to step in and protect the other child A cruel, bullying youngster will never grow up into a mature person unless he learns to respect the rights and feelings of others

Even for his own peace of mind the boisterous child must be prevented from harming other people Deep within himself he knows this is true A wise parent will seek to control him in a kind, sensible way Scolding and punishing him may only increase his feeling of guilt and drive him into further misconduct So, keep your head in dealing with this child Do not become angry, for this will only deepen the problem There are times when it may be better to



separate him from the other children for a while. This will give him an opportunity to cool down. Just tell him, 'You are not ready to play with other children just now. You are too excited. When you feel better, you can go back, but not yet.'

If children quarrel over a certain toy, it is best to put it away so that it cannot be used for some time. They will then realize that anger and quarrelling are decidedly unprofitable and they may even help each other to avoid such unpopular mistakes.

*Preventing Quarrels*

Many serious quarrels can be prevented if parents are wise enough to see them coming in advance. Suggest some other activity to take the minds of the children off their injured feelings. This will help to avoid misunderstandings between the children and perhaps between some of the neighbours as well!

If your boy gets too wild in his play, sit down and tell him a quiet story. This may save you many hours of trying to repair the damage later on. An energetic child needs plenty of outdoor space in which to play and move around freely. Show him how to play fairly and how to get along with others. Don't nag or scold him, but try to be patient with him. Child training takes time, but if you are kind and considerate, he will eventually grow up, and you will be proud of him.

*When Children Tell Lies*

All young children are blessed with vivid imaginations. They never really know the difference between truth and fantasy. Hence it is often difficult for them to think and reason correctly.

There is a great difference between the mind of a child and that of an adult. Parents should not be too troubled by the 'tall tales' of a child so young he cannot really tell the difference between fact and fancy. Actually, the child may be telling the truth—as he sees it. However, a wise parent will always investigate the problem for himself, particularly if the child is repeating something he heard or saw at some neighbour's house. His imagination may be working overtime!

Children are not alone in this Go into any court of law and listen to the different kinds of testimony given by several people, all of whom witnessed the same event These witnesses may be strictly honest, even though their stories are different But the judge knows that even the most impartial observer always tends to see things from his own point of view Can we blame the child for doing this too? In a moment we will mention how to handle the lie problem It is often related to inferiority feelings

*Feelings of Inferiority*

Some children make friends easily, others are less fortunate. Many times they unconsciously antagonize their playmates. Because they are unpopular they soon begin to feel inferior Such a child may then assume a superior attitude criticizing others and distorting the truth He needs help in overcoming his personality problems

When an older child tells lies he may be trying to protect himself from unfair criticism in school or at home Perhaps his grades in school are not as good as they should be Yet later in life he may prove far more successful than the other child whose grades are so high just now

How should you handle such a problem? First of all, by improving your relationships within the family Try to help the child to understand the difference between right and wrong Did he really mean to deceive, or is this a passing phase that he will outgrow before long? By all means try to avoid misunderstandings and unfair criticism on your own part Be sure to set a good example of honesty in your own life Above all let him know that you appreciate all the many good things he does Then with proper guidance he will learn to live by high standards and will follow them for the rest of his life

# TELLING YOUR CHILD ABOUT SEX

A healthy interest in sex is perfectly normal for any child In fact, if he has no interest, it may indicate some real problem. Is he trying to hide his *normal curiosity? Has someone already provided* him with certain information, and told him things that are not true? What about your own attitude? Are you to blame? Have you been perfectly frank with him, or have you tended to put off all discussion till a later time?

When your child asks where he came from, it is time for you to tell him the truth If you lie to him now, you may lose his confidence forever How much you tell will depend upon his age. At four or five years he will not need to know all the details, nor will he even be interested Just a few simple sentences will satisfy his curiosity Later he will want to know more details

If he asks, Where did I come from? you could quite casually reply, 'You grew inside your mother

'How did I do that? he will probably ask You can just explain that a little 'seed or sperm from the father starts the baby growing inside the mother Let him see the pictures of a growing baby *as illustrated on pages 160 165 Explain how the eyes, hands,* and feet all grow at the same time, and how the various organs continue to develop until the baby is old enough to be born

Do not try to hide the difference between the sexes *It is far* better for your child to recognize these differences early in life, than for him to remain in ignorance

If another baby is on the way, it will be easier to explain a little more about how the baby grows. With a young child it will not be necessary to enter into a discussion about sex relations, for he is not old enough to understand The 'facts of life can often be made plain very naturally if there are pets in the home

The child should not be given the impression that the doctor has to cut a big hole in the mother to let the baby out, for this would only make him afraid of doctors and hospitals Explain to him that

his mother already has a place—the birth canal—through which the baby comes. It is present in all baby girls This will take away the mystery and help the child to know what is going on Here again the birth of a litter of kittens or puppies in the home could go far in simplifying what otherwise might be extremely perplexing The earlier he understands these things the less trouble he is likely to get into later in life In talking about sex, try to be perfectly matter-of-fact, avoiding all embarrassment when discussing these topics

On the other hand, be careful not to give him the impression that you have loose ideas on the subject of sex A parent who is too free in his attitudes may disturb the child so that he will lose all sense of right and decency Try to avoid being rigid in your own attitudes. Fill his mind with noble and uplifting thoughts Help him to appreciate the finer things of life If you do this, he will grow to admire your frankness and decency



Striking and sometimes sudden changes in the teen ager puzzle parents.

# THOSE TURBULENT TEEN YEARS

Growing up is never easy, particularly when high-spirited young people reach the age of twelve or thirteen years. Up till this point someone else has always made most of the decisions for them. But suddenly the whole situation changes, for these are the years when girls and boys begin to grow rapidly, gaining strength in bone, muscle, and sinew. This is also the time when their minds are beginning to expand rapidly, and each becomes an individual in his own right. Now they begin to put away childish things and become grown up, but such a transition is never simple.

Such striking changes always raise serious problems, for parents and teen-agers alike are often confused and uncertain what to do. The young person feels quite able to handle things for himself, and yet most of the time he longs instinctively for the protection of home and the guidance of older, wiser minds. At the same time he does not want to show such "weakness." So he begins to boast loudly, and often becomes defiant and unreasonable, especially toward older members of his own family. Parents must not be too distressed about this, for he is only trying to move out into the adult world for himself. In spite of his attitude, he really knows he is not ready for adult life.

But teen agers are not the only ones who are 'off the beam' at times. Many parents are also unreasonable and expect the young person to do things that are really beyond him. Then in the next breath they say he's "too young to understand"! All this adds to the confusion, and the teen ager may decide it is high time to leave home once and for all. But if there is an atmosphere of love and confidence in the home, even the most difficult young person will eventually pass through these years without permanent harm.

### *Expect Some Mistakes!*

As far as possible, all young people must be allowed to make their own decisions. Naturally they will make some mistakes, just as

their parents did This is how they learn to stand on their own feet as adults. However, parents must provide sensible rules for them to follow, otherwise they may never learn to live in the adult world. At the same time it is equally important for each young person to be accepted by his own age group

The young person need not slavishly follow all the whims of the parents Nor should he act as if there were no rules of conduct in the world It is the parents' responsibility to make sensible rules to guide the teen-ager as he grows up At the same time he must retain his own individuality He must now be treated more as an equal and not ordered around as a small child Under this friendly guidance and counsel, he will soon be willing to accept reasonable suggestions, provided his parents are wise enough to help him solve his problems as a mature young adult.

### *Unfair Competition*

Not all young people are brilliant when it comes to studying at school Some are gifted in one way, others in another Some grasp lessons easily, others have to work harder Wise parents will make allowance for these differences They will avoid making unfair comparisons even between members of their own family Many a young person can overcome serious handicaps in life provided he is given proper training and encouragement Wise parents will realize that each young person deserves a fair chance to develop in his own way, rather than being urged to follow somebody else's pattern. Some of the greatest people in the world were not brilliant in school In most cases they matured more slowly, but their contributions to humanity were far more enduring than those of their classmates.

### *The Clumsy Age*

Rapid growth during the early teens brings many other changes, some quite amazing Boys who never could keep their hair tidy or their faces washed, suddenly begin to comb their hair twenty times a day and even wash behind their ears for the first time in their lives! Teen-age girls are forever in front of the mirror, working out new hair styles ridiculous at times, but each eventually tending toward a more settled adult pattern. Teen-agers are very anxious to be accepted by those of their own age, and most of all by those of

the opposite sex All these changes are perfectly normal and are just part of growing up

But many other amusing things happen during these eventful teen age years Their rapidly growing bodies are often awkward and hard to manage They seem to be all arms and legs and cannot co-ordinate themselves properly They stumble around knocking things out of place, and are continually dropping and breaking things they touch This is indeed a most distressing stage, but fortunately it soon ends Parents must be patient, remembering their own experiences in adolescence Their young people need sympathy and understanding, not harsh criticism during this stressful time

*Growing Tall*

Then there is the matter of growth All young people do not grow at the same rate. Some may shoot up as much as six or seven inches in one year, while others seem to be standing still The tall one feels awkward and conspicuous because of his height and wishes he would stop growing so fast

The shorter one feels equally out of place, envies the taller one, and wonders what is wrong with himself The short teen ager still looks like a child, and because of his height he may be treated as such This annoys him, for already his mind is expanding On the other hand, the tall adolescent is already beginning to look like an adult, but most of the time he may still reason more or less like a child How can they help feeling confused? Understanding and patience on the part of parents is vitally important at this stage.

*Sex Problems of Young People*

During the teen age years all normal young people suddenly become conscious of sex Striking changes are now taking place within the body, producing new reactions that are often followed by deep feelings of guilt How these peculiar problems are handled will mean a great deal both now and in the years to come. Bad company and a lack of proper guidance may lead to a life of sorrow and tragedy Many parents are embarrassed to explain about sex, hoping the young person will learn the true facts of life from someone else. Such sources of information are often faulty, and sometimes they are downright immoral

Many a nervous woman can trace the beginning of her illness to the fact that she was not told in advance about menstruation and *the facts of life* She was either left in total ignorance, or perhaps given scanty misinformation, with the result that she became frightened and ashamed at the sight of a little blood This is certainly not fair to any girl Long before this she should be told frankly what to expect She should realize that menstruation is a perfectly normal occurrence in the human female, and that these menstrual periods will continue every month for the next thirty years or more, except *during the time she is* pregnant *She should* understand *that her* monthly cycle has a beneficial effect on her body, giving her graceful curves and making her attractive and beautiful

By the time a girl is able to menstruate, she already has enough common sense to understand what it is all about There is no reason for her to feel ashamed or guilty She should not be told she is "sick," for actually she is perfectly well Menstruation is a simple process just like breathing It is a normal part of the reproductive process by which the race is continued from one generation to another Without menstruation this would be impossible Having begun her monthly periods, she is already a woman—physically, although she still has a lot more growing up to do

### *When Girls Menstruate*

The monthly cycle in the girl is controlled by the glandular system No one really knows very much about why menstruation starts when it does nor exactly how it is regulated But we do know that when a girl reaches a certain size and age she will begin to menstruate, usually every twenty-eight days for three days or so although this may vary from one person to another She may be a little irregular at first but this is nothing to worry about.

Some girls begin their menstrual periods as early as eleven years of age Others do not begin until their sixteenth year, yet all are perfectly normal There is no reason for undue concern if the beginning of menstruation seems to be a little delayed This may be a family trait.

This time of life—known as puberty or the beginning of menstruation—is the time when a girl grows most rapidly She may even feel a little embarrassed because she is one or two inches taller than the

boys her age But she has no need to worry The boys will soon catch up and become taller as their glandular organs begin to develop and function This is all part of the normal growing process in either sex.

During the teen years or adolescence, nature does a wonderful piece of sculpturing As her body takes shape, the natural feminine curves appear Her breasts begin to develop and hair begins to grow under her armpits and around the genital organs Soon her face takes on the shape of a mature young woman, making her highly attractive to the male, a fact she quickly recognizes and uses to her advantage as she grows older!

### *Female Problems in Young Girls*

Usually the female organs of a growing girl operate without anything unusual occurring But there are times when the girl may be troubled by an excessive *white discharge* known as leukorrhœa This is not a normal occurrence. She should seek the counsel of her doctor, rather than discussing the problem with those not qualified to advise her However, a slight discharge is not unusual at *ovulation* (midway between periods), or during times of strong sexual excitement. There is nothing abnormal in this But if there is intense itching, the trouble may arise from certain organisms, such as *trichomonas,* or some other type of infection *Pin worms* are another source of irritation in the vagina, particularly in younger girls Treatment is easy today, with the use of Antepar or piperazine citrate. But before treatment is begun all the organs should be thoroughly examined to rule out the presence of gonorrhœa or even cancer

### *Painful Menstruation*

Some girls are troubled with genuinely painful menstrual periods However, such cases are far less common than most people imagine It is true that just before the menstrual period begins, some girls seem to feel a slight sense of depression This is not abnormal The girl should be encouraged to go about her normal activities just as though nothing had happened There is no reason for her to go to bed for two or three days every month just because of a slight indisposition

Nor should she be told to expect menstrual pain or headaches or nervousness. If these do occur, the trouble might be due to her body retaining fluids because of certain chemical changes in the

blood stream At this time a girl may gain from two to five pounds in weight. Doctors often prescribe a tablet of chlorothiazide daily for the last five days before menstruation each month

During a normal menstrual period a girl loses a relatively small amount of blood, usually less than half a cupful, and her body soon makes this up again However, if bleeding is excessive and pain rather severe, it is time to do something about it Some minor abnormality may need correction Today we have useful medicines for regulating the time of the menstrual flow, if it should need to be corrected in any way

### *Dealing With the Other Sex*

Every young woman should realize that her future is largely governed by her own attitude toward life. Much will depend on how she conducts herself with the opposite sex. Girls of loose morals may be popular for a while, but in the end they will only succeed in destroying themselves.

Any normal girl has one basic goal in life—to become a successful wife and mother Instinctively she knows that a happy marriage is impossible unless both husband and wife mutually love and respect each other If she wants to be respected by her husband to-be, she must first respect *herself* To win his respect, she must set a high standard for her own conduct, so that he will know she values her own future too highly to enter into any questionable type of conduct. If she is foolish enough to be persuaded into premature sex relations, she is making a grave mistake. Not only will she always feel guilty, but in future years she may have serious doubts about her own reliability and trustworthiness. When it comes to real peace and happiness in later life there is no substitute for chastity

### *Danger of Cancer*

Early sex relations raise another serious question, that of cancer Medical studies for a number of years have shown that cancer of the *cervix* is more prevalent in women who have indulged in premature sex relations during their early teens. The most dangerous time is apparently between fourteen to eighteen years of age. For this reason if for no other, a girl should wait until she is mature before entering into sex relations.

*Masturbation*

All teen age boys are soon aware of certain sex problems that never seemed to exist in early childhood. This is also true of girls, but usually to a lesser degree. The rapidly growing sex organs are easily stimulated, often to the embarrassment of the young person. Unless the young person is careful, harmful habits may be formed that may plague a person to the end of his or her days. The act of self-stimulation, known as *masturbation*, is often a real problem to the young person, and always raises the question of what can be done about it.

These secret acts of sexual excitement can be definitely harmful, especially when carried to excess. Often the individual tends to become secretive, living in a kind of dream world where fantasy plays a dominant part. Many highly nervous older women freely admit that most of their troubles stem from some form of self stimulation, indulged over long periods of time.

Among teen age young people nervous problems are always more common in those who indulge in this sort of thing. Many of them seem unable to face reality. Frequent masturbation, with its tendency to day-dreaming, can be harmful, particularly to those who are subject to nervous depression. Young people who want to enjoy life should avoid all such practices.

We should point out, however, that an occasional emission of seminal fluid during sleep is not unusual in any young man. There is no reason for him to feel anxious and guilty about this, for it is just another evidence that he is growing up. Unfortunately, many a boy has been almost frightened out of his wits by hearing tall tales of the supposed dangers of this perfectly normal function. This is not fair. Such stories are often invented by people who have quack medicines to sell. With proper training, any sensible young man will soon realize that these occasional nightly episodes are not harmful. He should build up his body with vigorous exercises and fill his mind with wholesome thoughts instead of worrying too much about these things. If he does this, he will soon find all these disturbing thoughts taking secondary place as he trains himself for a successful place in the world.



Setting up a new home with love and thoughtfulness as the basis is the greatest adventure of human beings.

CHAPTER 27

# HAPPINESS IN MARRIAGE

Marriage is the most important and most enjoyable of all human relationships It is the true basis of all family life No one should ever enter into marriage thoughtlessly Too much is at stake. Far too many people are unhappily married because of hasty decisions True marital happiness requires that both husband and wife be well matched in mind and body, and that they be compatible and easy to get along with It always takes two people to make a successful marriage, but one alone can spoil it through neglect or selfishness

Setting up a new home is a great adventure for all who are young at heart. There are so many things to see and do and so many pleasures to enjoy together Most thrilling of all is the privilege and enjoyment of a normal sex relationship Nothing contributes more to a smooth running home than this On the other hand, nothing seems to cause more trouble than failure in this normal part of human experience Men and women who are not prepared to understand this simple fact had better not enter into marriage for they are likely to be very disappointed

### *Importance of Sex*

This is the highest expression of physical love that human beings can enjoy—a satisfactory sex relationship Among most of the lower animals this does not appear to be true. In them the sex instinct apparently has only one purpose—that of reproduction whatever the cost And once their offspring have reached physical maturity the parents generally feel no further responsibility The family relationship then breaks up, the parents may separate and not even recognize their young after they are fully grown

Not so in the human family Here things are very different. The young human not only grows slowly, but must develop a mind with reasoning power Because of this slow growth, a human family must be kept together as a unit for the proper training of the children A broken home is always a tragedy It is certainly not an ideal place

in which to have a child grow up, but there are times when it might be preferable to a home in which the parents are continually quarrelling Children who have lost one parent often turn out far better than those who have grown up in a home constantly torn with strife and anger

Marriage does not solve all the problems of life by any means. Take a good look at the people around you How many of them are really happy? Some may appear carefree and light hearted, but underneath there is often a feeling of loneliness, of having missed the best things in life This is often true of married people. Many of these people were far from happy before they were married Some of them entered into matrimony only in the hope that it would solve their problems But marriage rarely solves major personality problems

### *Marriage Is for Mature People*

It is highly important for both husband and wife to be mature in mind before they enter into marriage Many unhappy people are sick both in mind and body Some immaturely take out their feelings on others, becoming spiteful, cantankerous, unreasonable and harsh in their attitude toward life.

Others turn their frustrated feelings upon themselves, producing ulcers, high blood pressure, tension headaches, indigestion and many other unhappy symptoms They are constantly troubled with nervous complaints Their diseases may appear different, but the underlying cause is often the same. Their problems began during early childhood They are constantly struggling with various emotions. Many wear themselves out trying to settle problems for which there may be no solution How did they get this way? Often because of misunderstandings between their parents.

Some of these unhappy individuals felt unwanted during their early years. Perhaps they were unhappy because someone else was the favourite child of the family Such situations always lead to unhappiness and frustration with life It doesn t take long for a child to feel neglected and unwanted How then can he help feeling lonely, sad and depressed?

Most family problems start first of all with the parents. If they are argumentative and have divergent viewpoints there is bound to

be trouble If the parents undermine each other in the esteem of their children, they can expect unhappiness The trouble is often due to one or the other parent not having fully grown up, with the result that no one is happy No one should consider marriage unless he or she is already a mature adult. This is most important A mature mind and a wholesome attitude will go a long way in preventing serious trouble in the home

*Avoiding Quarrels*

Whenever something seems to be going wrong, it is wise to bring the problem out into the open for a frank discussion The sooner this is done, the better This will prevent the development of serious resentments that only make the situation worse and might in the end destroy the home Never allow yourself to brood over slights and irritations that can and should be corrected Talk these problems over with your wife or husband and then forget them. Constant harping over unhappy episodes in the past will only lead to further trouble

One must also avoid the temptation to become too ambitious It is true that a wife can do much to help her husband but she must realize that even she cannot change his whole personality Many women have made the serious mistake of urging their husbands on to activities that are really beyond their capacity Their only reason is to satisfy some foolish ambition It is far better for a man to be happy and satisfied in his work than to overreach himself and perhaps ruin his health and future by trying to live up to unreasonable standards Many a woman has become a widow because her husband has worn himself out trying to meet her demands for things the family could not afford

The woman's function is to care for the home and children, leaving her husband the responsibility of earning a living and providing for the family Nature has fitted her for this role and here is where she will shine best. In some cases the woman herself may have to become the breadwinner, but generally she will be far happier filling her intended place in life

*Mending a Broken Home*

Most marital tangles arise from selfishness, on the part of one or both of the parents They may try to cover the differences, but

older children are not deceived Usually they have been around long enough to recognize faults on both sides In fact, never is there a completely innocent party in a divided home. Serious differences of opinion inevitably lead to discord in the home, regardless of the cause. As far as possible, these should be avoided

In mending a broken home one must first recognize that the break exists Refusing to see the problem will only prolong the misery and increase the strain. The mending process cannot be accomplished in a day a week, or even a month Some of the more serious problems may never be solved, particularly if one mate is of an unstable mind and subject to outbursts of temper and other signs of immature behaviour But many problems can be solved and the strain relieved provided both parents are willing to forgive and forget. This is not easy, but it is always well worth trying

*How Many Children?*

How many children should you have in your family? Certainly no more than you can afford to nourish and educate The ideal family should have at least two or three children One child growing up alone in the home is always at a great disadvantage, unless he is surrounded by other children with whom he can grow up and have pleasant relationships. Larger families tend to be happier than small ones, *provided* there is real stability in the home and enough food and clothing to meet the needs of all

The centre of every home is the mother She is the one who must make the day to-day decisions, guiding the children as they grow up, and helping them to meet the battles of life with courage and understanding It is largely her place to see that all are fed and well cared for She must train them in the way they should go This is particularly true in the younger years before they go to school. Even afterward her word should remain the unwritten law in the home. To her every child must give a full measure of love and respect, and if she is wise, she will teach them to love and respect their father

The man's responsibility is equally great, though somewhat different He must earn a living for his family and provide them with the home they deserve. Each child needs to feel the warmth of his love and affection. Each is worthy of an equal share of his father's

time and interest. If the father excludes himself from the home, claiming that the pressure of business requires his constant attention, he can hardly be surprised if in later life his children feel estranged from him.

In homes where the mother is completely dominant, strained feelings and various kinds of nervous problems may often affect both mother and children. A woman functions best in association with her husband. This is more likely to produce a balanced home atmosphere. In all the larger issues of life the feminine mind responds best to the guidance, counsel, and cool judgment of the male. On the other hand, she is far more adept in guiding the family through the maze of little decisions that make up life. Thus each parent is necessary for the full development of the children and for maintaining balance in the home.

### *Importance of Good Discipline*

In many modern homes Father has become "the forgotten man." He is so busy with other things that he has little or no time to spend with his family. In such a case, the mother may then have to step in and try to take his place. This is not good for the child. A wise father will always spend a reasonable amount of time with his children, helping them to overcome the many handicaps of growing up in a complicated world. When he is strong and sensible, his children will love and respect him, and this will mean more than bringing home extra money for them to spend. Strange as it may seem, the most valuable things in life cannot be bought with cash. Nor will a child respect a father who abandons the home and goes off to spend long evenings with his friends. His place is in the home, spending as much time as he can with the family.

A man who is irritable and short-tempered will not be respected by his family. Such behaviour is a sign of weakness rather than strength. But a father who is kind and understanding will always carry the respect of his children and the community as well. The well being of society and enrichment of human lives depend to a large degree on homes built upon these basic principles.

# VENEREAL DISEASES

There are two major diseases related to sex that all should know about These are syphilis and gonorrhoea Although these diseases are sometimes contracted in other ways, they most frequently are *picked up through sexual intercourse with someone who already* has the disease *Prostitutes* are the usual source of infection in any community

Men who want to be healthy and strong will naturally avoid all contact with such loose living women whether they are professional prostitutes or not. Certainly no sensible young man would want to have sex relations with a woman in the so called "red light district." If he does, he has no one to blame for almost certain trouble but himself Many of these women are infected with syphilis and gonorrhoea, often having both diseases at the same time.

There was a time when it seemed that syphilis would soon be a thing of the past. Modern miracle drugs would end this foul body and soul-destroying disease. But because of careless living on the part of many young people the disease is spreading rapidly today in spite of advances in modern medical science Public health authorities are doing their best to stamp out syphilis, yet the disease is still with us. And it seems likely to continue for some time. This means that a person must be on guard continually against possible infection.

### *Syphilis*

Syphilis is one of the greatest scourges ever to hit the human race. This disease was apparently unknown to Europe and Asia until the fifteenth century It is believed it was brought back from the New World by some of the men who sailed with Columbus. Within a short time the disease had spread like a plague Hundreds of thousands of people died from this new and frightful epidemic. Doctors were powerless before this dreadful plague that seemed to strike old and young alike. After the first great epidemic, the disease changed into the slow steady killer it has ever since remained

Syphilis is a dangerous venereal disease It is caused by a little corkscrew-shaped germ called a spirochæte This tiny germ is transmitted from one person to another mainly through sexual contact. In a few cases syphilis is acquired through contaminated material and even through injections or blood transfusions, if the germs are present in the blood If a mother is infected with syphilis, the germs may find their way into the child's body before birth

Most cases of syphilis are contracted from prostitutes. In the male there may be a painless sore on the penis lasting several weeks In the female there may be a sore deep in the vagina, but because there is no pain the woman may not be aware of it. This early *primary* lesion is known as a *chancre* At first the germs are confined to this one area Later they invade the blood stream and are carried to all parts of the body perhaps causing a mild rash on the skin that fades in a short time. This is the *secondary stage*

The disease may then remain for a long period of time in the *latent* form, where it can be discovered only by a suitable blood test In the *late* stage tumours or swellings may appear in various parts of the body, and there may be severe inflammation and degeneration The nervous system is often affected with disastrous results. Many of these patients may then have to be confined in mental institutions and asylums because of syphilis involving the brain and spinal cord This late syphilitic manifestation, known as *general paresis* of the insane, results in headaches, loss of memory, tremors of the lips, tongue, fingers, and hands, and changes in the pupils of the eyes.

Another form of degenerative disease due to syphilis is known as *tabes dorsalis* In this disease the syphilis germs attack the nerve roots coming from the spinal cord The patient complains of weakness in the lower extremities, and has difficulty walking in the dark He may have to walk with his legs wide apart in order to keep his balance ' Lightning pains " sharp and stabbing, may be felt in the back and lower extremities Severe gastric upsets are common There may be vomiting and acute abdominal pain lasting for hours or even days. Large ulcers may develop on the toes, heels, and soles, and there may be a thickening and splintering of the bone in the joints of the knees. There is often a loss of normal bladder control in the late stage of this disease

In some cases a large swelling or *gumma* may develop under

the skin in several places These may also occur in the inner organs of the body such as the stomach and liver There may also be a *loss of vision* due to degeneration of the optic nerves

*Syphilis in Babies*

Pregnant women who are suffering from syphilis may pass on the disease to their unborn children If they do not take proper treatment, the disease may strike the unborn child with great severity, resulting in serious conditions Soon after birth, the bones of the child will appear somewhat deformed the liver and spleen enlarged and the child may have trouble with his eyes Often there is considerable damage to the brain and central nervous system, perhaps causing the child to be retarded both mentally and physically His teeth and gums may also be deformed, he may have a "saddle nose," as well as sores at the corners of his mouth His teeth may be sharp and pointed and his eyes scarred

**Treatment** Large doses of penicillin will usually destroy the germs of syphilis, particularly during the earlier stages of the disease. Treatment should be started the moment syphilis is suspected Erythromycin can be used in patients who are allergic to penicillin There is no successful home treatment for syphilis Any disease as serious as this must be treated under expert medical direction If you are in doubt go at once to a reputable doctor or to some large medical centre for advice and treatment.

*Gonorrhœa*

Gonorrhœa is another venereal disease which is almost always transmitted by sexual contact It is caused by a tiny bean shaped germ called a *gonococcus* In some cases the disease may also be contracted from contaminated hands, instruments clothing contaminated toilet seats and even bath water This is particularly true in the case of little girls, all of whom are extremely susceptible to this disease.

**Symptoms** Burning on urination may be the first sign of trouble There may also be a sense of urgency and frequency of urination and in addition a profuse, greenish yellow discharge In the male the end of the penis may be red and swollen In the female the glands around the opening to the vagina may be hot and swollen,

and there may be a thick yellow discharge present during the acute stage However, many adult women carry the germs for a long period of time without realizing they have the disease and may readily transmit the germs during sexual intercourse A *chronic discharge* is common in both sexes In young children, particularly little girls, there may be marked redness and swelling of the genital organs with burning on urination If a mother happens to be infected with gonorrhœa, there is great danger of a new born infant contracting the disease during the process of birth Unless the infant is properly treated he may become completely *blind* later in life

**Complications** Not only is there pain and discomfort in both sexes during the acute phase of gonorrhœa, but many cases of *sterility* result from this serious infection In the male the prostate gland becomes infected and there may be narrowing of the urinary canal, resulting in slow urination In the female the Fallopian tubes may become closed by an abscess and the inflammation may spread to the whole female pelvis There may be fever, nausea, vomiting, and severe pain in the lower abdomen Many cases of suspected 'appendicitis' are later found to be due to gonorrhœa If the germ invades the blood stream there may be inflammation in the larger joints such as the knees, ankles, or elbows as well as inflammation in the eyes

**Treatment** Penicillin is still the best drug for treating this serious disease At least 600,000 units should be given every day for seven to ten days Large doses of Terramycin can be used if the patient is sensitive to penicillin

*Preventing Venereal Disease*

Surely any intelligent person who has read this chapter so far will already have made up his or her mind to avoid both syphilis and gonorrhœa by clean, wholesome living The frightful price of promiscuous living is only too obvious to all sensible people Prostitutes are dangerous, not only to young men but also to the future wives of these young men, and later to their children In addition to disease dangers there is always the possibility of teen age pregnancy, and the finding of oneself tied for life to someone who is really not a suitable companion An unwanted pregnancy may force a young man into an early marriage, but this may be later followed by separation and the resultant sorrows of a broken home If not, there is

still the feeling of guilt due to unhappy memories that remain for life.

Many young women are scared away from early sex contacts through fear of pregnancy, but this is not always true in the young men There are plenty of "easy" girls around to trap the unwary and spread disease. And many young women are all too easily led into unwanted sex contacts because of a desire to be popular Some young men may boast of their conquests when in reality they have never had any experience at all. They are only talking this way because they think it is virile and masculine. But the truly manly young man will never descend to telling lies, nor will he be foolish enough to try to outdo his fellows with questionable women

Here is where parents can help Fathers need to get close to their sons, taking them on short outings, just the two of them together Such occasions can be among the happiest memories of a boy's life. The same is true with young women If their mothers would make pals of the girls instead of lecturing to them, life would hold far more beautiful relationships for both of them What is more, they would learn how to conduct themselves aright instead of allowing emotions to control them

Life can be unbelievably beautiful when there is a close relationship between husband and wife, and when they are well matched in mind and body and really remain true to each other This should be the goal of all young people. In seeking for it, they will lay the foundation for happy homes which they can enjoy the rest of their lives

Chapter 29

# INFECTIOUS DISEASES OF CHILDHOOD AND YOUTH

The human body has many enemies, large and small. The most dangerous are far too small for the human eye to see. These are the germs and viruses. Not all germs are dangerous, however. Some are highly beneficial and necessary for life, but others are responsible for many serious diseases, such as bronchitis, pneumonia, septic sore throat, tonsillitis, tuberculosis, and abscesses. Diseases even more dangerous are caused by viruses—organisms considerably smaller than germs. Indeed they are so small that they can be seen only with the help of a powerful electron microscope.

Fortunately, most virus diseases strike a person only once. In recovering from the disease, the body builds up resistance or *immunity* to the organism. Doctors take advantage of this natural mechanism of the body by using various vaccines, serums, and antigens to protect against certain serious diseases, such as polio. As time goes on, more of these protective vaccines will be produced. Today we are able to protect most children against such serious diseases as diphtheria, whooping cough, and tetanus by using the well known DPT injections given to babies during the first few months of life. For further details see page 188.

Protection is now available against polio, either by using the live vaccine or the Salk injections. Children can be vaccinated against smallpox and other contagious diseases. These protective measures mean that most children today have a far greater chance for better health than ever before. Parents should certainly take advantage of this newer knowledge to protect their families against unnecessary illness.

### *Chills and Fever*

Normally, the human body maintains an even temperature of somewhere around 98.6° F., whether the weather is hot or cold, dry or wet. This wonderful temperature regulating mechanism is located



With good nursing care a healthy youngster will recover quickly from most childhood diseases.

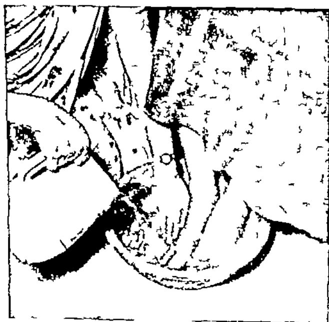
in the base of the brain. As long as a person is in good health it operates smoothly and efficiently day and night. Slight variations of temperature are not significant. One might have a temperature of 99.2° or 97.8° and still probably be normal.

But a sudden attack of shivering plus a sense of coldness and pallor of the skin may be the first sign of infection. As soon as the chilly feeling passes the temperature may begin to rise. The skin may then become hot and dry and remain thus as long as the fever continues. When the fever breaks, there will be profuse sweating as the body cools itself off. Fever is often the first indication that the body is fighting some invading germs or viruses. The fever steps up the body's resistance and is thus beneficial provided it does not continue too long.

Fever may sometimes arise from other causes, such as thyroid problems, tumours, skin diseases, parasites, burns and other severe



A hot foot bath is an excellent way to treat a head cold Keep the feet in hot water for fifteen or twenty minutes This will help to draw the congestion away from the head and relieve the irritation in the sinuses. A hot bath will also aid in relieving nasal congestion.



injuries. The temperature may rise because of *sensitivity to certain* drugs, or because of allergic conditions such as rheumatic fever, rheumatoid arthritis, and many others

In children most serious infections are usually accompanied by some rash This helps in making the right diagnosis—a factor important in treating any illness Medicines that are useful *in one condition* may not benefit another Naturally, if the condition seems serious, call your doctor Meanwhile, here are a few suggestions

**Treatment** If the patient is shivering, cover him with warm blankets and apply a hot water bottle, heating pad, or something similar If the skin feels hot, keep the patient quiet, giving him plenty of fluids and fruit juices, and also some mild aspirin preparation For a young child give no more than one or two *grains* of aspirin every two to three hours

Cooling measures, such as are outlined on page 232, are useful in treating a fever If the temperature is very high (such as 103° F ), immerse the patient in cold water, adding ice if available. Hydrotherapy is always the safest means of treating any type of fever Good nursing care as outlined in chapter 10 is most important in treating infectious diseases.

Take care of the skin by the daily use of soap and water, using the bed bath technique outlined on page 84 Apply a little rubbing alcohol or similar preparation to prevent irritation of the skin The patient *should remain in bed and be turned frequently to prevent bed sores* Be sure to keep the skin *clean* and *dry* Take care of body wastes such as urine and stool, whenever necessary The patient should remain in bed at least twenty four hours after the temperature has returned to normal *Light meals* with plenty of fruit juices, are best for any patient with a fever

## *Measles (Rubeola)*

Measles is a highly infectious disease that usually occurs in epidemics. Most adults have already had this disease It rarely occurs *twice in the same person* Measles usually begins with *chills* and *fever* followed by a hacking *cough, running nose* and eyes and a general feeling of weakness and lassitude After about three days large pink blotches appear on the skin of the face and neck, and also on the mucous membranes of the mouth The rash looks like pink flakes of bran and usually spreads all over the body

At the height of the illness the temperature may go up to 104° F or more, and the child feels very ill Usually there is swelling around the eyes, and the child may try to protect his eyes from any strong light. He has a deep chest cough and suffers intensely from itching skin Within two or three days the fever slowly comes down to normal and the rash fades, leaving a brown discoloration which may continue for a week or more

**Complications** Some cases of measles go on to more serious conditions, such as tonsillitis, pneumonia, and otitis media (middle ear disease) One rare but serious complication is **encephalitis**, or inflammation of the brain

**Treatment** Keep the patient in bed, in a cool room, and protect his eyes from bright light Give him some suitable cough syrup such as that suggested in the appendix If the skin is very itchy apply calamine lotion several times a day Keep the skin clean by frequent bathing Nose drops are often beneficial in clearing the nasal passages and keeping the airways open This will help to protect the ears from infection, and prevent other complications in the throat It is well to call your doctor, especially if the child has a deep cough, for **pneumonia** is one of the most frequent causes of death following measles

Gamma globulin has proved of some benefit in protecting children who are weak or ill from some other cause. The best treatment of all is to *prevent* the disease by the use of **measles vaccine** This is now available everywhere and all young children should be given the benefit of this full protection However, if your child has already had measles, there is no point in giving him the vaccine All other children should be protected in advance

### *Chicken pox*

Chicken pox is a mild disease affecting almost all children during their early years Many investigators think this rather mild virus disease is closely related to a much more serious condition that affects adults, called **shingles**, or herpes zoster Chicken pox occurs most frequently in cooler weather, and seems to affect children from three to four years of age Infants under six months seem to have some immunity against the disease, probably through the mother In most cases the older the child, the more severe the attack

Chicken pox usually begins with a low grade fever, a mild headache, and a feeling of weakness Next day the skin may be flushed and hot. Later small "teardrop-shaped blisters appear on the skin mostly *on the upper back or chest In more severe cases the* face and extremities are also involved Within a few days the skin clears up and the child feels well again

*Treatment* Bathe the skin daily with soap and warm water Keep the child s nails closely clipped to prevent scratching otherwise germs on the skin may be scratched into the blisters, causing more *severe infection Calamine lotion and talcum powder are helpful in* controlling the itching In more serious cases penicillin or some other antibiotic may be needed to control secondary infection of the skin

## *Smallpox*

Smallpox is a very dangerous disease caused by a filtrable virus. In past generations it was one of the greatest scourges of the human race killing hundreds of thousands of people every year Today, thanks to vaccination introduced by Jenner many years ago, it is rarely seen But this is no reason to let down our guard In the first month of life, if its mother has had no vaccination, an infant should be vaccinated against smallpox By the second or third month all infants should be vaccinated against it because there are always cases of smallpox here and there which may be contracted unwit tingly Vaccination against smallpox should be repeated every three years for the rest of a person s life

Smallpox begins with a heavy chill followed by a *high fever* and prostration similar to a bad attack of influenza Persistent vomit ing and even *convulsions are common in small children The rash usually appears on the third day and is first seen on the forehead* temples, and around the mouth later spreading to the scalp neck *arms* hands, and all parts of the body In the next stage small abscesses or pustules develop in the skin under the rash, and the patient has a high fever and suffers from great weakness This continues for eight or ten days. Healing is slow and the patient feels worn out and exhausted for weeks Death is common in young children who contract smallpox. Adults who have been vaccinated many years before may still develop a mild form of the disease

**Treatment** Prevention is most important *Be sure all members*

of the family are *vaccinated* against smallpox This should be repeated at least every three years, and more often in areas where smallpox is known to exist Patients suffering from smallpox need good nursing preferably in a hospital Penicillin and other antibiotics are useful in treating the pus-filled lesions of the skin Itching may be controlled by the use of calamine and other lotions mentioned on page 428 The eyes should be treated two or three times a day to remove the surplus secretion For directions see page 604 As in all other types of high fever, the patient should be given plenty of fluids and fresh fruit juices Strict quarantine of the patient is necessary Smallpox is such a serious disease no family should be without adequate protection through vaccination

## *Mumps*

Mumps is a contagious disease that occurs most frequently in children and young people between the ages of five and fifteen years of age Babies are usually immune Most people have mumps only once in their lives, but one person in ten may have a second attack. This disease is caused by a virus which attacks the salivary glands of the mouth, particularly the *parotid* glands located on each side of the face just below and in front of the ear After a young person is exposed to a case of the mumps it takes about two weeks before he comes down with the disease Usually he experiences pain on chewing and swallowing often made worse by swallowing acid liquids, such as vinegar or lemon juice. Painful swellings develop at the sides of the face and below the ears Glands under the chin may also become enlarged and swollen and there may be a slight fever The swelling lasts from two to three days and then generally goes down

**Complications** Mumps is usually a mild disease in younger children During adolescence it is often more severe In teen age boys the testicles may be affected, resulting in a condition called orchitis This is painful and may result in sterility in later life. A far more serious complication occurs when the mumps virus attacks the brain and nervous system causing meningoencephalitis

**Treatment** Keep the patient in bed for several days until the temperature returns to normal Local applications of heat or an ice bag over the affected area will help to relieve some of the discomfort. Use a good cleansing mouthwash to keep the membranes clean Be

sure the patient has *plenty of fluids*, and preferably a *soft diet*, such as outlined in the appendix Soft foods reduce the need for chewing and thus decrease pain When older boys contract mumps they should be given 20 cc. of gamma globulin to protect them against testicular inflammation Hydrocortisone is also useful in reducing inflammation in the more severe cases

### *Whooping Cough*

Whooping cough is a contagious disease that may cause serious trouble in the lungs At the height of the disease the patient goes through severe spells of coughing These often end in a high pitched crowing form of breathing The disease is seen less often today because many children are now protected in early infancy by the DPT shots (The 'P' represents pertussis, the medical name for whooping cough See page 188 )

An attack of whooping cough may last as long as six weeks. It is a distressing disease to both parents and children and may result in damage to the lungs and bronchial tubes, particularly in youngsters who are not strong The younger the child, the more serious the disease.

**Prevention** Be sure your baby is fully protected against whooping cough by *means of the DPT shots outlined on page 188 If he* does develop the disease later, it will be rather mild

**Treatment** Isolate the child from other members of the family and community Give him small frequent meals and plenty of fluids between feedings Vomiting is common after the severe spells of coughing Good nursing care is essential, especially in children who are weakened through some previous illness Gamma globulin 2.5 cc to 5 cc may be given intramuscularly and repeated several times if the child is very ill Milder cases of whooping cough will usually clear up without any permanent damage, but the best treatment of all is to prevent the disease by protecting the child during the early months of life, as suggested on page 188

### *German Measles (Rubella)*

German measles is a mild contagious disease causing few if any problems to the patient. It is also known as *three day measles* and is more often seen in adolescence and the young adult years The greatest danger may occur in the case of unborn children if the mother

develops the disease during the first three months of pregnancy For this reason, all young girls should be exposed to German measles early in life Once they have had the disease, they cannot have it again, and thus the hazard associated with having this disease during pregnancy later on will be eliminated

German measles has nothing to do with regular measles It is caused by an entirely different virus It is less contagious, and many children do not contract the disease until they are young adults. The patient, usually a young adult or teen ager, may complain of a slight headache, stiffness in the joints, and a feeling of weakness There may be a slight swelling behind the ears due to enlarged lymph glands This may be discovered more or less accidentally while combing the hair, and may be the only indication of German measles. If a rash occurs, it is mild and lighter in colour than regular measles. There may be a slight flush resembling scarlet fever The rash itself usually disappears within two or three days

**Treatment:** If the patient feels sick he should remain in bed for several days until he feels better In the case of complications such as ear ache, it is well to call the family doctor Pregnant women should be protected by the use of gamma globulin, particularly during the early months of pregnancy German measles does not hurt the mother, but it can be serious to an unborn child It may cause deformities of the heart, mouth, eyes, and other parts of the body

### *Polio*

Poliomyelitis was once called infantile paralysis because of the frequency with which children developed the disease It is found in all parts of the world and occurs more frequently in summer and autumn Adults may also develop the disease, although most of them have probably been exposed to the disease during childhood and have built up some immunity

During severe epidemics the virus has been isolated from sewage, and also from food contaminated by flies or cockroaches. It is a strange turn of events that in countries with a low standard of living polio is rather rare. Most of the children have already been exposed to the virus and have developed an immunity In countries with a higher standard of living the actual disease occurs more frequently because most children have not been exposed during their

early years Polio could probably be wiped out completely today, *either by the use of the Salk vaccine or the Sabin oral vaccine*

*In the first stage* of polio the patient has a slight fever, head *ache, and sore throat This may clear up entirely in two or* three days, and the patient may then be immune to the disease for the rest of his life In a few cases the fever may return after several days It will be more severe, and there may be *headache, stiffness of the joints of the neck* and back, as well as *muscle pain* and tenderness *This may be followed by* partial or complete **paralysis** of some part of the body, such as an arm or leg In **bulbar polio** there may be paralysis of the throat and larynx, and the patient may not be able to swallow or breathe without the use of a respirator However, many cases of paralysis clear up fairly well and only about 25% of the more severe cases result in permanent damage Generally speaking, the older the patient the more serious the disease.

***Prevention*** *Young children and pregnant women are particular* ly susceptible to polio All families are advised to take Salk vaccine, or Sabin oral vaccine if available This is given in three doses, usually four to six weeks apart, beginning with Type I, followed by Type III, and finally by Type II

**Treatment** *Good nursing is most important in all cases* of polio Paralysis is more likely to be permanent if the patient remains active during the first twenty four hours after the beginning of severe symptoms. He should be hospitalized as soon as any paralysis is noted Most milder cases can be cared for at home Place a thin *plywood board beneath the mattress, above the springs and another* board at the foot of the bed to protect the patient s back and feet Hot packs as suggested on page 96, should be applied for thirty minutes several times a day to whatever parts of the body are affected Because of heavy sweating the patient will probably need a little extra salt If he is constipated, use *some mild laxative*, such as milk of magnesia

If the patient is unable to breathe properly, call an ambulance and send him to hospital where he can be placed in a suitable tank respirator This will provide him with oxygen and help him to breathe. *Such cases are very rare, and the decision to use a respirator* must be left to the doctor in charge.

Paralysed muscles may need the combined care of a doctor, a nurse, and a physical therapist As soon as the pain and fever have

subsided, the therapist or nurse should begin both passive and active motion of the affected muscles This will help to restore normal function and will keep the weakened limbs in the best possible condition All of this must be handled by the physical therapist under the direction of the doctor

Orthopædic surgery may be needed later to correct any bone or joint deformities or to reattach healthy muscles as needed Further suggestions for helping handicapped patients are found on page 430

Certain other strains of virus including Coxackie and ECHO viruses may produce a similar picture to polio These are usually milder The treatment in such cases is much the same

## *Diphtheria*

Diphtheria is a highly contagious disease caused by certain germs occasionally found in the throats of apparently normal people! These are known as 'carriers of the germs They do not actually have the disease Sometimes the germs are found in other areas such as in open wounds. Years ago diphtheria attacked many thousands of children It is rarely seen today because many children are now protected by DPT shots during infancy (The "D represents diphtheria ) Milk and other foods may contain diphtheria organisms, a good reason why all milk for human use should either be pasteurized or *boiled*

**Complications** Children with large tonsils and adenoids are more susceptible to diphtheria especially if they have not been given the DPT shots in infancy Greatest danger arises from blockage of the windpipe due to infection in the throat This causes strangling, and the patient may die unless quickly relieved by a tracheotomy Diphtheria also damages the heart, the brain and the kidneys Diphtheria germs produce powerful *toxins* or poisons which damage near by cells and even affect distant organs such as the kidneys. The toxins are carried to these areas by the blood stream Heart failure may occur because the muscle fibres become weakened and are unable to contract as they should

**Course of the Disease** Diphtheria begins with a sore throat within a few days after the patient has been exposed to the disease. A greyish membrane forms in the throat, and there is pain and dif

ficulty in swallowing Soon the child becomes dangerously ill with a high fever, and breathing may be obstructed because of the swelling in the throat Large tender glands develop in the neck, and the ears may be tender and inflamed Pneumonia and bronchitis are common, but the most dangerous complication is *myocarditis,* or inflammation of the heart. The nerves of the throat may be partially paralysed, and the kidneys damaged, sometimes permanently

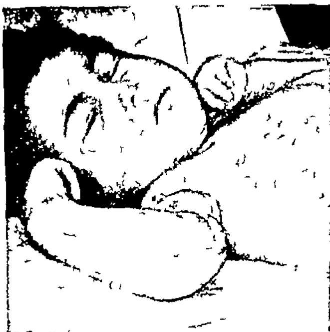
**Treatment** All young children should be protected against diphtheria by means of DPT shots, as suggested on page 188 In case of an epidemic of diphtheria, all children under two years of age should be given **antitoxin** without delay Patients with diphtheria should be kept in bed and isolated from the community, preferably in a hospital specializing in the treatment of contagious diseases. Tube feeding and continuous oxygen may be necessary in the more severe cases Penicillin and erythromycin are of value in treating the complications The patient should remain in bed for several weeks, and should not be allowed up until the *electrocardiogram* has returned to normal Recovery is often slow, particularly when the heart is involved Large doses of vitamins B and C are advisable in all such cases.

*Scarlet Fever*

Scarlet fever or scarlatina is a contagious disease caused by certain streptococcus germs, usually located in the throat The disease is transmitted by coughing and by contact with contaminated articles including food and milk When severe, scarlet fever may last for two weeks, and may be followed by tonsillitis and ear infections

Scarlet fever is more common in densely populated areas It occurs more frequently at the end of the cool season Most cases occur between the ages of two and eight years

**Course of the Disease:** Patients with scarlet fever usually complain of headache, *sore throat,* weakness, vomiting, and *fever* Small children may have *convulsions* The face is flushed, but there is a pale area around the mouth, known as circumoral pallor In the throat there may be a yellowish grey membrane. Twenty four hours later a diffuse pink rash appears on the neck and chest, which later spreads to the abdomen and extremities The skin has a roughened sandy feel to the touch In darker skinned people the palms and soles may be the only places where the rash can be identified Milder cases are frequently not recognized, except for a sore throat.



MEASLES is a very con *tagious disease affecting* almost every child. Serious complications sometimes develop The child has a dry cough and a high fever followed by *a reddish brown rash all* over Keep him in bed until he is well.



CHICKEN POX is a mild *disease* affecting most children. The child comes down with a fever and later develops itching areas on the skin. These later develop into scabs or crusts which fall off leaving small dimples.

More severe cases should be treated in hospital In patients who are severely ill, the germs of both diphtheria and scarlet fever may sometimes be found together

After two or three days the high temperature begins to come down, but there may be some fever as long as the throat is sore The rash usually subsides after three or four days Recovery is slow, often requiring up to four or five weeks Complications may be serious, particularly when the ears, the heart, or kidneys are involved Rheumatic fever and nephritis sometimes follow scarlet fever, particularly if the child is allowed up too soon.

**Treatment** *Isolate the patient* to protect the community All cases of scarlet fever should be carefully quarantined or sent to a hospital specializing in the treatment of communicable diseases All persons who have contacted the scarlet fever patient should be given **penicillin** or some other antibiotic *daily* for at least the next five days. If desired, a longer acting penicillin can be used, in which case only one injection may be necessary

Good nursing care is most important in treating a patient with scarlet fever Penicillin should be given daily Some other suitable antibiotic, such as tetracycline, may be used if the patient is allergic to penicillin Sulpha tablets and Terramycin have also proved effective in treating this disease The patient should be kept in bed, and given a soft or liquid diet (see appendix) Alcohol sponge baths and other cooling measures as suggested on page 232 may be used to bring down the fever and make the patient comfortable Applications of cold cream or oil lotions are helpful in controlling itching Be sure to keep the patient in bed until the doctor is certain all signs of the disease are gone.

## *Rheumatic Fever*

Rheumatic fever or inflammatory rheumatism is a very serious disease that mainly affects children and young people in their teens. It is thought to be an allergic condition that attacks the connective tissues of the body, causing *joint pains* and St. Vitus dance due to central nervous irritation and skin lesions. All these are more or less temporary The really serious part of this disease is the damage it does to the valves of the heart. Certain streptococcus germs present in the throat are apparently responsible The body becomes highly sensitized to their presence, and it is this allergic response that harms

In most cases the child first develops a sore throat. Several days or weeks later he may have a fever with aching in the joints, a lack of appetite, profuse sweating, and perhaps even a rash No two cases are exactly alike in their manifestations This often makes the diagnosis difficult and uncertain. If there is any doubt, it is best to carry out the treatment outlined here

Rheumatic fever seems to run in certain families. If both parents have had the disease during childhood, their children are more likely to have rheumatic fever Wherever large numbers of children and young people are gathered together there is always the likelihood of rheumatic fever Overcrowding, malnutrition, and dampness often play a part Small outbreaks of rheumatic fever may occur in army barracks

Two out of every hundred children in school are likely to have some form of rheumatic heart disease. Rheumatic fever causes more deaths during the first twenty years of life than all other infectious diseases added together These are facts no parent can afford to forget Rheumatic fever strikes children in every part of the world

**Course of the Disease** Rheumatic fever usually strikes first in childhood around eight years of age The child comes down with a sore throat or cold, followed by an attack of tonsillitis or perhaps scarlet fever While he is recovering from the infection, one or two of his larger *joints* become red swollen, and tender to the touch There is also *soreness* in the muscles and tendons, as well as lack of appetite and a feeling of weakness Tender nodules may appear on the skin, particularly over certain joints, such as the elbows. *Nose bleeding* is common in rheumatic fever, even when there has been no injury

Pains in the chest probably mean that the inflammation has reached the pericardium and the heart muscle itself The child may develop pneumonia, pleurisy and even abdominal pain resembling acute appendicitis. The patient may become fidgety owing to Sydenham's chorea, or St Vitus' dance. This is more common in girls but also occurs in boys Hand movements may be rapid, jerky, and irregular, and the patient has a tendency to drop things. There may be muscle weakness and even some difficulty in chewing and swallowing particularly in younger girls

Not all cases of rheumatic fever are this definite In some children the disease may be of a low grade, smouldering type with

few definite signs But the child is not well He is easily fatigued and may not gain weight as he should. He may have a persistently rapid pulse rate and low grade fever, continuing for long periods of time The child may complain of '*growing pains*' This means an aching pain in the muscles and joints, and perhaps over the heart Such complaints must be taken seriously The child should be put to bed and kept there till he is well and strong again School is much less important than his future health

**Special Tests** Unfortunately we have no specific tests for rheumatic fever The diagnosis can be made only after a careful study of the patient's history, physical examination, and all the laboratory findings In most cases both the white blood count and the sedimentation rate are well above normal The C-reactive protein test may also indicate the presence of inflammatory disease Other tests including the antistreptolysin or AST test, may also be elevated Special smears taken from the back of the throat may reveal the presence of streptococcus germs, but all these tests are only indicators of infection.

Another important test is the *electrocardiogram,* although in some cases it may remain normal Any disturbance in the normal tracing may indicate some interference in the conduction of electric currents through the heart muscle Changes in the T waves are also significant, especially in a child suffering from joint pains and fever Such findings must always be seriously considered The child must be kept under good nursing care until the electrocardiogram has returned to normal.

X ray studies of the heart may show that organ to be dilated. During later stages of the disease the X rays may show marked changes in the shape of the heart because of damage to the mitral or aortic valves Rheumatic heart disease and its special treatment, including surgery on the valves of the heart, are more fully discussed on page 244

Heart *murmurs* are common during rheumatic fever, but may disappear entirely when the disease clears up provided the patient has been properly treated But if the valve cusps are badly damaged, murmurs may return years later as the valves become progressively more deformed No patient who has had rheumatic fever may be considered to be free of heart disease until he has been observed over a period of many years The more careful the immediate treatment, the less likelihood of complications later on

**Prevention** Rheumatic fever can usually be prevented by treating all patients who have sore throats or other streptococcal infections in the community, and especially in the home Penicillin is still the best medicine for severe sore throats If the patient is sensitive to penicillin, tetracycline may be given The choice of medication must be made by the physician in charge Patients who have had rheumatic fever or rheumatic heart disease should be given penicillin or some other medication regularly for at least the next twenty years, or preferably for life

**Treatment** *Keep the patient in bed* until all evidence of rheumatic fever has disappeared This may take several months or even a year *The patient should be kept as quiet as possible Take his* temperature once or twice daily When he feels better, and the temperature has returned to normal he may be up and about for limited periods each day But any strenuous exercise should not be permitted for at least one year or longer, depending on his condition

Good nursing care is always the secret of success Note carefully the condition of the skin, using rubbing alcohol or some similar preparation to keep down irritation A heating cradle such as described in the Appendix, is beneficial in treating swollen joints In severely ill patients the fever may be very high Absolute bed rest is important in such cases

**Medications** Most doctors give some form of salicylate, such as aspirin several times a day to relieve pain and reduce the fever Always give the medicine with a little milk, because salicylate tablets tend to burn the lining of the stomach In the more severe cases cortisone products or sulphadiazine are of value ACTH may also be used Penicillin helps to clear out the haemolytic streptococcus germs from the throat The more severe cases are best treated in hospital to prevent further cardiac damage. Some may require oxygen and other medications to help the circulation

**Diet** Liquid and soft diets are preferred in the early stages of rheumatic fever The patient should be given plenty of water and other liquids, especially if he has a high fever Keep him in bed in a quiet restful environment, preferably at home Some mild sedation may be needed if he is nervous and jittery, for it is most important to keep the patient quiet in order to protect his heart from further damage As long as there is a high white count, an elevated sedimentation rate or changes in the electrocardiogram, the patient

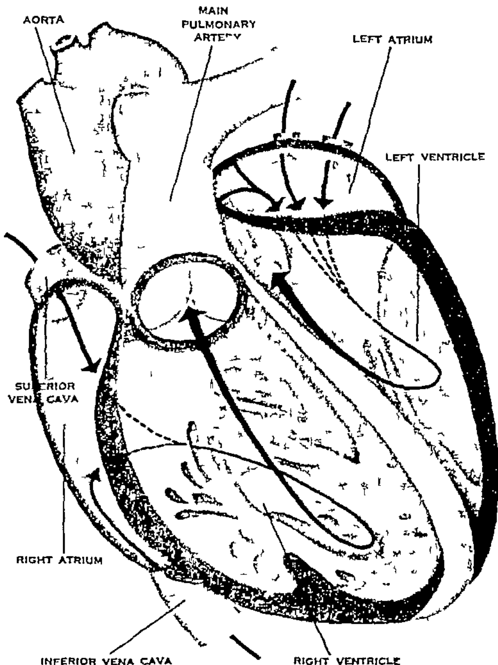
should remain in bed He *should* be seen frequently by his own physician With proper rest and the right kind of care, even the worst case will soon improve and may even make an almost complete recovery

*Infectious Mononucleosis*

Infectious mononucleosis, also known as **glandular fever,** is most likely to occur among teen agers and young adults The cause of this disease is still not definitely established During the first few days the patient complains of fatigue, headache, chilliness, and feelings of weakness. Later, the lymph nodes in the neck, under the arms, and in the groins become enlarged and tender Then the patient develops a high fever and a sore throat, and may also complain of soreness in the abdomen on the left due to enlargement of the spleen The tonsils may be enlarged, and there may be tenderness over the liver, similar to infectious hepatitis In more severe cases there may also be pain over the heart, due probably to pericarditis. Virus pneumonia may be another complication

The diagnosis of infectious mononucleosis, or glandular fever can be established only by having a complete blood count and other tests. In this disease there is a marked increase in white blood cells, and many abnormal lymphocytes are also seen A heterophile agglutination test may be needed to confirm the diagnosis This disease usually continues for a month or six weeks It is serious, but rarely fatal.

**Treatment** Keep the patient in bed, especially during the peak of the fever Give plenty of **water** and **fruit juices** Some mild medication such as aspirin, five grains every four hours, will help to lower the fever and keep the patient comfortable Children need correspondingly smaller doses If the temperature rises to *106°* or *107°*, *wrap* the patient in a wet sheet and pack ice around him until the fever comes down Rinse the mouth frequently with some good gargle or antiseptic solution Penicillin or sulpha tablets are useful in treating tonsillitis and sore throat. **Hot packs,** as suggested on page 91, may be applied to the chest and spine. But care must be taken to avoid *heavy pressure over the abdomen, for this may rupture* an enlarged spleen Keep the patient in bed for at least three or four weeks. A sore throat may be relieved by using a **heating compress,** as outlined on page 95 Good nursing care is most important in this disease Most patients recover without any serious complications, provided they are willing to stay in bed until they are well




How blood circulates through the heart. Blood returns from all parts of the body to right side of heart (shown in blue) From there it is pumped to the lungs where it drops cabon dioxide and picks up oxygen Now bright red the blood returns to left side of heart and is pumped to all parts of the body

Chapter 30

# DISEASES OF THE HEART

The human heart is a marvellous organ Its function is to move the living stream of blood through all parts of the body, never stopping even for a moment in its endless activity Although the heart is one single organ, it actually consists of two pumps, right and left The right side of the heart, with its two chambers, receives blood from all parts of the body and propels it to the lungs There the blood drops its load of carbon dioxide and receives a fresh supply of oxygen, then passes to the left side of the heart (with its two chambers also) and from there it is pumped to all parts of the body

Each side of the heart operates independently of the other, but they act together in keeping the blood circulating normally The walls of the heart consist of powerful muscle fibres that have the power to contract or beat rhythmically This constant rhythmic beating keeps the circulation going

Your heart does an enormous amount of work. It beats over *one hundred thousand times a day,* continually pumping the blood through more than 60,000 *miles* of tiny blood vessels. These tiny capillaries are only a tenth of an inch long, but if they could be placed end to end they would stretch two and a half times around the earth at the equator To maintain the right pressure, all these vessels must be filled with the right amount of blood otherwise the tissues of the body would waste away and die

### *How the Heart Beats*

The motions of the heart are maintained by a specially designed structure known as the sinoatrial node or SA node This little structure is capable of initiating a regular rhythm, and transmitting these electrical impulses to all the muscle fibres of the heart wall This is how the constant rhythmic contractions are maintained.

This SA node or pace maker is located near the top of the heart. It really operates like a small radio station, flashing out its signals in

regular electric waves These are the P waves seen on the electrocardiogram or tracing of the heart. These P waves make the atria or auricles (the left and right upper chambers) contract to fill the ventricles (the two lower chambers)

Lower down near the main valves of the heart, another small structure the atrioventricular or AV node, picks up these radio signals and transmits them through the special conduction fibres or filaments to all the muscle cells of the powerful ventricles or pumping chambers of the heart These electrical impulses are the QRS waves seen on the electrocardiogram Almost instantly after the QRS wave the ventricular walls contract, emptying the pumping chambers into the aorta and out to all the arteries This is the *pulse* you can feel at your wrist

Then for a split second the heart relaxes and fills with blood It is now ready for the next contraction or beat This whole amazing process is an engineering feat without any equal Because of the simultaneous electric flash, all the heart muscle cells contract as one unit, even though they are each stimulated individually by these electrical impulses coming from above

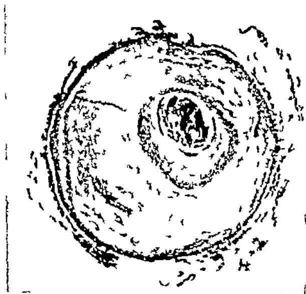
### *The Coronary Arteries*

Naturally, to maintain all this activity, the heart must feed itself It must also be constantly supplied with oxygen The heart's own blood supply is maintained by two very important vessels known as the **coronary arteries** Centuries ago early students of anatomy discovered these vessels winding their way around the heart and thought they resembled a crown—hence the name coronary They are among the most important vessels in the body If one of these should fail, the heart might stop and that would be the end

As the blood leaves the left side of the heart, it passes through a large artery known as the **aorta** This great vessel, nearly an inch in diameter, passes upward from the heart then curves over to the left, and passes down behind the heart into the abdomen As mentioned above, the first branches of the aorta are the left and right coronary arteries. These supply the heart itself with blood Other large branches supply the head, neck, upper extremities, and all the organs of the chest and abdomen Down near the pelvis the aorta divides



Normal artery has a smooth and flexible wall.



Large blood clot (thrombus) blocking the artery thus making the heart work harder

into two major vessels that supply the pelvic organs and the lower extremities.

This great network of vessels is known as the arterial system of the body Out in the tissues the smaller arteries divide into endless tiny hair sized vessels called **arterioles**, and these in turn divide into still smaller vessels called **capillaries** It is through these innumerable tiny capillaries that the exchange of oxygen and food substances takes place.

The waste products and carbon dioxide from the tissues are then picked up by the blood stream and brought back through the smaller veins These, like the tributaries of a river, join together forming larger vessels until eventually the blood reaches the two largest veins, the superior and inferior vena cava, and through them returns to the right side of the heart.

Blood coming *toward* the heart from distant areas of the body is dark red in colour, as you will see whenever you cut yourself From the right side of the heart this darker blood is pumped to the lungs. There it gives up its surplus amount of carbon dioxide and takes on a fresh supply of oxygen This extra oxygen immediately changes the colour of blood to a brighter red The freshly oxygenated blood then passes through the large pulmonary veins to the left atrium (auricle) of the heart. As soon as the mitral valve opens, the bright red blood flows down into the left ventricle and is immediately pumped by way of the aorta to the entire body The left ventricle contracts or beats about 70 times each minute not for an hour, a day, or a year, but for an entire lifetime!

### *How the Heart Grows*

The heart is such a remarkable organ that perhaps a few words about how it develops and grows are in order Within the first two weeks after conception a small tube begins to form in the tiny embryo or unborn baby Believe it or not, this is the forerunner of all the blood vessels in the body A few embryonic blood cells also begin to float around within this tiny vessel This is the beginning of the blood stream From these early developments the entire circulatory system of the body will eventually form

As the little tube expands and grows, it begins to twist in a certain way, forming at first just one single chamber This is the beginning of the heart! Within this enlarging area a septum or

dividing wall begins to grow, forming not one but four chambers. The two upper chambers are the left and right atria (or auricles), the two lower, the left and right ventricles. Normally there is no connection between the right and left sides of the heart after birth But special doors or valves open between the atrium and ventricle on each side of the heart, so that the blood will flow in only one direction This whole mechanism is surprisingly simple, considering the enormous amount of work this embryonic heart must do Any failure in the development of the septum or valves may lead to some form of congenital heart disease.

### *Circulation Before Birth*

During fœtal life there is no connection between the baby's blood stream and that of his mother All the blood flowing through the baby's heart is always his own, never his mother's Her blood circulation is entirely separate, as is shown on page 151 However, the baby's blood stream flows close to the mother's—being divided by a very fine living membrane—so that he can pick up food materials and oxygen necessary for his own growth, and at the same time get rid of the materials he no longer needs

As the tiny unborn baby grows, so does his heart. The most critical time of growth is during the first three months of pregnancy. If at that time his mother should come down with some virus infection, such as German measles, the baby's heart may be deformed by some type of congenital heart disease.

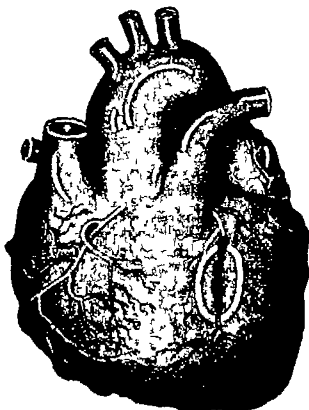
Doctors recognize *four* major types of heart disease congenital heart disease, rheumatic heart disease, hypertensive heart disease, and coronary artery disease In addition, there are several minor types to which brief references are made in other parts of this book. We will briefly outline several of the more common types of *congenital* heart disease here

### *Congenital Heart Disease*

Some babies are unfortunate enough to be *born* with a damaged heart. This is known as congenital heart disease. The defect apparently arises from some infection or injury to the baby's heart during the first three months after conception Congenital heart

disease is less common than other forms of heart disease, but when it occurs, it can cause plenty of trouble to all concerned There are many varieties of the disease, no two cases being exactly alike

**Atrial septal defect** is an abnormal opening or shunt between the two upper chambers of the heart, the right and left atria or auricles Instead of flowing in the normal direction, part of the blood from the left atrium flows across into the right atrium, and is then recirculated through the lungs without having passed out into the tissues to nourish the body This forces the right side of the heart to work doubly hard for no good reason This abnormal opening or defect raises the blood pressure on the right side of the heart. The child often suffers from frequent chest colds and may fail to grow as rapidly as he should Eventually, because of extra resistance build

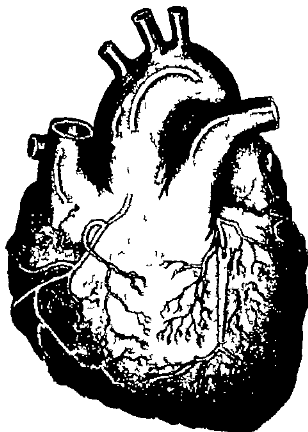


Coronary artery blocked by blood clot in an acute heart attack.

ing up in the vessels supplying the lungs, the blood flow may reverse itself, passing from the right to the left side When this occurs the patient may turn *blue,* a condition known as **cyanosis**

Surgery on the heart is the only satisfactory answer to this problem Under suitable anæsthesia the patient is cooled to a low body temperature The chest is then opened and the defect repaired Most patients make a satisfactory recovery following this operation, provided the abnormal opening is not too large and does not involve the mitral valve Once the patient turns blue the risk of operation is greater, but even at this stage something can usually be done to help

**Ventricular septal defect** means an abnormal opening or shunt



The same area some time after the heart attack. The scar tissue has replaced the normal heart muscle.

between the right and left ventricles or pumping chambers of the heart Because of the higher pressure on the left, some of the bright red blood coming from the lungs is forced through the defect in the septum or dividing wall, where it floods the right side of the heart This excess blood is recirculated through the lungs, another waste of energy similar to what occurs in an atrial septal defect described above The pressure in the right side of the heart is increased, and there is a loud **murmur** heard over the breastbone or sternum Not only is there danger from overloading the lungs, but in this type of defect the patient may possibly develop a very serious condition known as **subacute bacterial endocarditis** (SBE), or some other serious inflammation involving the heart muscles

Whenever possible the defect should be closed by a surgical operation on the heart, using the heart lung machine In this operation the surgeon usually stops the heart and allows the machine to pump the blood while the defect is being repaired

**Patent ductus arteriosus** means that a certain vessel called the ductus, which normally closes at birth, has remained open, allowing blood to pass from the aorta to the pulmonary artery This produces an effect similar to the atrial and ventricular septal defects described above The only difference is that the abnormal opening occurs between the great vessels just *outside* the heart This produces a continuous "machinery" murmur which is heard mainly in the upper part of the chest on the left Eventually the extra strain upon the circulation may cause the heart to fail Worse still, the abnormal opening may become the focus of infection for subacute bacterial endocarditis. Eventually the vessels of the lungs may become constricted and refuse to carry the excess blood This raises the pressure in the pulmonary artery, so that eventually the shunt may flow in the reverse direction The patient may then turn blue or cyanotic, especially when he exerts himself He may complain of shortness of breath and pains over the heart. However, a few people do manage to live for many years with this condition, provided the opening is not too large.

Surgery is the best treatment for this condition The abnormal channel should be closed, preferably some time between the fourth and tenth years of life. Meanwhile, the child should be taking penicillin or some other suitable antibiotic to prevent serious complications.

**Coarctation of the aorta** means a localized constriction or narrowing of the aorta near the point where that vessel crosses behind

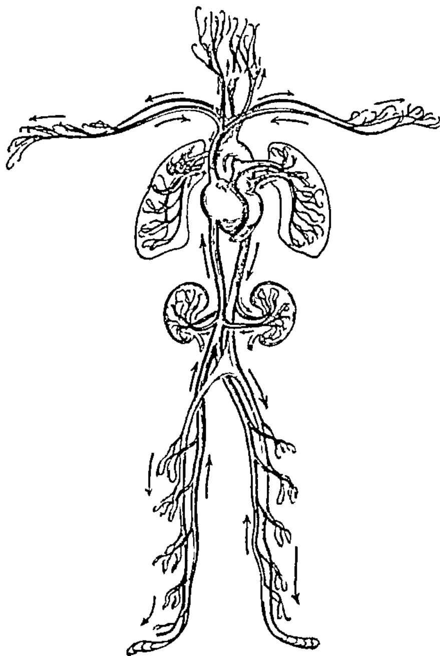
the pulmonary artery This is the spot where the ductus arteriosus or cross-channel between the aorta and pulmonary artery existed before birth (As we have just noted, in a few children this vessel fails to close, producing a patent ductus arteriosus )

This narrowing of the aorta means that the lower part of the body has a lower blood pressure than that found in the head and neck Blood flow is also much slower in the leg than in the arm, unless other vessels open up to supply the lower extremities with blood The patient may complain of numbness and weakness in the legs, and also severe *headaches* due to the very high pressure of the blood stream going to the head There is a loud *murmur* in the chest, which may also be heard all over the abdomen

X ray films of the ribs show notching along the edges of the ribs because of the increased size and twisting of the intercostal arteries The condition is serious and should be adequately treated early in life, otherwise three out of four patients with coarctation will die before they reach forty years of age. The best treatment is to remove the narrowed portion of the aorta by surgery, bringing the two ends together and perhaps using a small graft to repair the defect. Such operations can be done only by qualified teams of surgeons and cardiologists working together at some large medical centre.

**Tetralogy of Fallot** is a serious malformation in which there is a defect in the ventricular septum This allows the aorta to receive blood from both the right and left ventricles In addition, there is narrowing or stenosis of the pulmonary valve, and hypertrophy or enlargement of the right ventricle The large defect in the septum allows the darker and lighter blood to intermingle, so that the patient is bluish or cyanotic much of the time A young child with this deformity may have to *squat* down to get his breath after attempting to play like normal children

Because of the narrowing of the pulmonary artery much of the blood passes from right to left, thus depriving the child of a normal supply of oxygen to meet his needs There may be clubbing of the fingers and toes, and the child s growth may be retarded. Most of these children die in their early teens unless given the benefit of good surgery The red blood count tends to rise, the red cell count often going above ten million instead of the usual five million



The blood circulation system

The greatly thickened blood also slows down circulation In severe cases the child may have spells of unconsciousness brought on by lack of oxygen in the brain A rough, harsh murmur is usually heard all over the chest

The standard treatment for this condition has been the construction of an artificial channel or ductus between the pulmonary artery and the aorta, or between the pulmonary artery and one of the subclavian arteries. This forms an artificial ductus arteriosus condition similar to that described above. But even this defect will help the child More recently heart surgeons have been using the heart lung machine in attempting to close the larger opening in the ventricular septum between the right and left sides of the heart Some suitable plastic material is used for this purpose There is still considerable risk in this operation, but some technique such as this will eventually become the treatment of choice

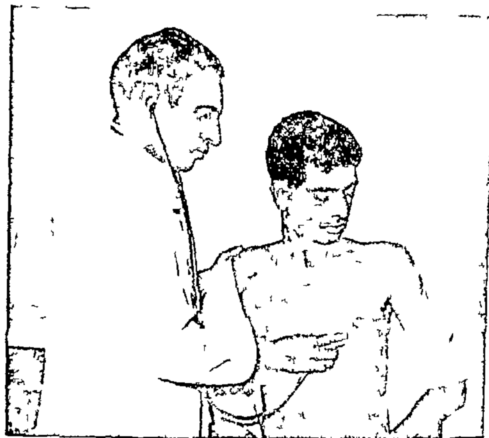
**Pulmonic stenosis** means a narrowing of the outflow tract from the right ventricle, either directly at the valve or in the muscle tissue just below Valvular stenosis is often associated with atrial septal defect, described on page 238 The child with pulmonary stenosis often suffers from shortness of breath when attempting to play with other children A harsh murmur is heard all over the chest X rays of the heart usually show an abnormally large pulmonary artery If the narrowing is very marked, the right side of the heart may fail the liver becomes enlarged and tender, and legs and ankles swell. Pulmonary valvular stenosis can now be corrected by means of a surgical operation, using either hypothermia or the heart lung machine

### *Rheumatic Heart Disease*

Rheumatic fever has already been discussed on page 228 In all cases the heart is involved to some extent, and in a certain number of these children the heart may be permanently damaged Much depends on the treatment given during the earlier stages of the disease

The first attack of rheumatic fever usually comes on at seven or eight years of age, most often following a severe infection of the throat with beta haemolytic streptococcus germs

Although rheumatic fever affects the heart as a whole, the most serious permanent damage occurs in the valves, those important doorways leading from one chamber to another Rheumatic heart



The heart, like every other organ, is subject to disease. Therefore, you should have your heart checked periodically

disease is a crippling condition affecting far too many children and young people Out of every 100 children with some form of heart disease, only two will have congenital heart disease, while 98 will have rheumatic heart disease.

Most frequently the *mitral* valve becomes damaged or thickened The chorda tendinea or muscle fibres supporting this valve tend to become shortened and fused together so that the valve can neither open nor close properly Because of the narrowing or *stenosis* the blood has difficulty in passing from the left atrium to the left ventricle This causes a rumbling diastolic *murmur* If the valve cannot close properly, some of the blood is forced back into the left atrium each time the ventricle contracts This further impedes circulation.

The *aortic* valve has three cusps, or doors that open and close simultaneously with the motions of the heart These may also be

involved The edges of the cusps may stick together and thus prevent the valve from opening properly This causes the serious condition known as *aortic stenosis,* a type of obstruction that raises the blood pressure inside the ventricle and puts a heavy strain on the heart muscle In some cases the valve cusps may also fail to close properly, resulting in another serious condition known as **aortic insufficiency** In this condition there is a leaking back of blood from the aorta during the split second when the heart is at rest. This leakage of blood lowers the pressure in the aorta, causing dizziness and weakness, especially if the diastolic or lower blood pressure drops down to 30 or 40 Of the two valvular conditions, the aortic stenosis and insufficiency is the more serious In some cases both mitral and aortic valves are involved

Heart surgeons are now able to free the mitral valve cusps and repair the damage so that the left ventricle can receive its normal supply of blood This is best done using the heart lung machine A more difficult situation exists when both mitral and aortic valves are involved together The narrowing or stenosis of the aortic valve may be corrected, but the risk of surgery is higher Today both mitral and aortic valves can sometimes be removed and artificial valves used in their places. This means that the life expectancy of patients with rheumatic heart disease is much better than it was even twenty years ago when many were doomed to lifelong invalidism

### *Tools for Examining the Heart*

In many of the larger medical centres today, highly trained teams of specialists are now developing newer and more wonderful ways of studying damaged hearts This is particularly important before surgery is attempted In one useful method of study known as *heart catheterization,* a thin flexible tube is passed through an artery or vein in the arm or thigh and into the chambers of the heart.

Through this flexible tube samples of blood are drawn and various pressures are measured Certain dyes can then be injected through the catheter tube to outline the chambers of the heart and also to see if there are any abnormal shunts or narrowed valve openings present. This is particularly useful in preparing the patient for certain types of heart surgery, such as in closing a hole in the septum or replacing a scarred valve with a new artificial valve

**Angiocardiography,** or *arteriography,* is the method by which certain blood vessels with dye materials are outlined while under X ray Remarkably clear pictures can now be obtained, enabling the cardiologist and cardiac surgeon to better understand the problem in hand **Orthocardiography** is another method of outlining the size and shape of the heart by means of a special X ray The patient merely drinks some of the barium mixture and X ray films are taken immediately after These pictures show the course of the œsophagus and thus show whether the chambers of the heart are enlarged or not.

**Vectorcardiogram** is a newer method of studying the electrical activity of the heart by means of a machine similar to the electrocardiograph This sometimes gives a more accurate picture of the electric current as it passes over the surface of the heart To a doctor trained in cardiophysiology, it reveals much valuable information which may not always be clear on the electrocardiogram. However, vectorcardiography is really only a more highly advanced research tool In most cases the electrocardiogram is all that is needed for a full evaluation of the electric activity of the heart

**Phonocardiograph** is another special instrument which measures the actual *sounds* of the heart as heard through the stethoscope It is useful in determining the location, quality, and importance of various heart murmurs Like the vectorcardiograph, this is a research instrument of real value in dealing with certain obscure heart conditions.

## *Hypertension*

**High blood pressure** is a very common condition seen in modern life In most cases the true cause is not known Certain hormone changes in the kidneys may be partially responsible Nervous tension also plays an important part, for reasons that are not too clear at present. A certain tumour, known as a **pheochromocytoma,** may also raise the blood pressure but this is very rare In about ten per cent of cases infections of the kidneys are also sometimes responsible. **Toxaemia of pregnancy** is another cause, and so is **coarctation** of the aorta. All of these conditions are discussed elsewhere in this book.

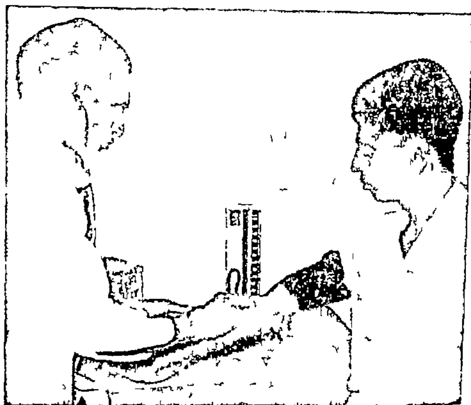
*But in the great majority of cases we are still at a loss to explain* why the blood pressure is elevated We certainly know something

about what is taking place, for we can measure the rising pressure But why does it start to rise? This is still a mystery Doctors call this type **essential hypertension,** a simple admission that we just do not know Usually the process is slow, but in some cases it comes on much more rapidly, developing the very serious form known as **"malignant hypertension"**

Not only is the heart affected, but changes may also occur in the eyes Blind spots may interfere with the vision because of retinal hæmorrhages especially in the later stages. The situation is serious but not hopeless Most hypertensive patients have a family background of *strokes, heart disease* and *kidney ailments* Young people from such families often begin to develop high blood pressure during their early twenties, probably because of some hereditary factor Such individuals seem to be abnormally affected by the ordinary stress and strain of living Nervous stimulation may cause changes in their arterioles. During the early stages the hypertension or high blood pressure may be more or less transitory, usually passing off after the emergency is over Later the changes tend to become more permanent perhaps because of some changes involving the kidneys.

Nervous factors also play a large part For instance, if the person with high blood pressure merely plunges his hand into ice cold water, his pressure will rise far above the level of someone else who does not have hypertension This may be due to irritability of the nervous system Any kind of excitement will cause the hypertensive patient s heart to pound more vigorously, and this pounding or **palpitation** may last for a longer than normal time This would seem to indicate that essential hypertension is not due to any single cause, but rather to several complex factors which we do not yet fully understand People with untreated hypertension do not live as long as those whose blood pressure is normal However, when the patient is given the proper treatment he can usually expect to live a more or less normal life, unless the pressure is very high

Normal blood pressure is 120/70, but may go up to 140/90 and still be normal Anything above this tends toward hypertension, especially if the pressure goes up to 180/120 The upper figure is known as the *systolic* pressure, but it is the lower or *diastolic* pressure that gives doctors the greatest concern The diastolic pressure should be maintained below 90 if at all possible



Your blood pressure tells your doctor a great deal about your health.

Patients with high blood pressure often complain of *headaches*, the pain being located mainly in the back part of the head and neck. *Tiredness* and *fatigue*, often without any obvious cause, may be another indication of hypertension Such persons may also complain of *dizziness*, especially at the moment of sitting up or lying down *Palpitation* of the heart is also seen in patients with hypertension Organs most likely to be affected are the heart, the brain, and the kidneys. Women with high blood pressure are more likely to develop *toxæmia* during pregnancy

**Treatment** Patients with high blood pressure should always try to follow a well balanced programme of exercise and rest. *Walking* is an excellent form of exercise. It builds strong muscles and helps to relieve the tensions of life This also aids in the circulation of the blood The excessive use of tea and coffee should be avoided, because both contain *caffeine* a highly stimulating drug that always whips up the nervous system into further activity Patients with high blood

pressure *should not smoke,* for tobacco constricts the smaller vessels, raises the blood pressure, and increases the work load of the heart. It is better to *stop smoking permanently*

Medicines for high blood pressure include Rauwolfia products, such as reserpine, 0 25 mg once or twice daily, and chlorothiazide or Diuril, 500 mg (or Esidrix, 50 mg ) one tablet once or twice daily Avoid the excessive use of salt, for this increases the pressure as well as the work of the heart

Most important of all one must try to develop a contented mind A quiet restful attitude will do much to relieve the tensions of everyday living Train yourself to shut out all the discordant sounds of the world around you Try to forget the worries that so often lead to hypertension. Remember that the cultivation of the mind and soul is always the best way to find healing and peace These are the secrets of living without fear

*Low Blood Pressure*

Low blood pressure or hypotension is far less common than hypertension or high blood pressure Sometimes the pressure falls rapidly because of hæmorrhage or loss of blood Low blood pressure may also come on gradually because of slow bleeding in the gastro-intestinal tract, or through the kidneys or bladder

Any lack of normal protein in the diet may also lower the pressure because of malnutrition or actual starvation, or because of some endocrine disturbance, such as hypothyroidism (discussed on page 543) In rare cases, an islet cell tumour may form in the pancreas, producing an excessive amount of insulin and lowering the blood sugar, as shown on page 553 Such patients always tend to feel tired and worn out.

Emotional problems are a far more frequent cause of low blood pressure For instance, some people will fall into a dead faint on hearing bad news This shocklike state is probably brought on by temporary disturbance in the vasomotor system, causing the patient to collapse To a lesser degree, prolonged disappointment and frustration may also result in a subnormal blood pressure Relieving the chronic stress, if at all possible, and at the same time developing a sensible attitude of mind, may be all that is needed to bring the blood pressure back to normal One should also add a little more protein to the diet and be sure to take sufficient rest and exercise.



A heart patient needs rest and relaxation.

*Heart Attack*

Like every other organ, the heart is subject to disease The most common form is coronary artery disease, or arteriosclerotic heart disease. When one of the coronary arteries becomes blocked by a blood clot, the patient suffers from coronary thrombosis This is a true heart attack

Many people think they are having a heart attack when they feel their hearts beating irregularly The feeling may be uncomfortable but this is not a true heart attack Nor is the pain of angina a real heart attack, although it may lead to one later A true heart attack occurs when one of the coronary arteries feeding a portion of the heart muscle has become occluded or blocked As a result, the muscle cells become sick unless blood can be shunted from surrounding vessels to meet the need of this damaged tissue those cells will die This is known as coronary thrombosis a most serious condition indeed Almost always there is severe crushing pain in the chest

**Coronary artery disease** is the most common of all forms of heart disease today More people die from coronary thrombosis than from all other forms of illness put together, including infections, accidents, and cancer Many of these victims are men who are cut down by a severe heart attack during their most productive years

To understand this problem we must briefly review the anatomy and function of the heart The coronary vessels supply the heart muscle itself with blood These two main vessels, the right and left coronary arteries, arise from the very first portion of the aorta They encircle the heart, supplying every muscle fibre with blood

During that brief moment when the heart is contracting, the blood rushes through the aortic valve into the aorta and on to all parts of the body During this split second when the heart is contracting, the openings to the coronary arteries are closed by the aortic valve cusps When the aortic valve closes, the openings to the coronary arteries are uncovered This allows blood to flow through these all important vessels of the coronary system It is during this split second when the heart walls are relaxing that the heart feeds itself Blood flows through the coronary system more easily when the heart beats with a steady rhythm The heart is far less efficient when the rhythm is irregular as in atrial fibrillation

Like arteries in other parts of the body, the coronary vessels can undergo certain changes, known as *atherosclerosis* In this condition the elastic walls of these arteries become damaged in some way The cells are then replaced by a soft, pasty material that often interferes with the normal flow of blood Eventually this mushy substance becomes filled or replaced with lime or calcium The vessel walls become hard and can no longer expand or contract This further stage is known as *arteriosclerosis*

The inner surface of one of these narrowed vessels becomes roughened and may then begin to trap some of the tiny microscopic platelets in the blood stream As these platelets begin to stick to the roughened surface a clot forms and before long that blood vessel is completely blocked As long as the blood can still get through the vessel there may not be too much disability But the individual may find he can no longer do quite so much work as he once could As the blood supply to that part of the heart is reduced, he may begin to suffer from sharp pains in the chest It may be transitory as in angina, or prolonged and severe as in coronary thrombosis

*This type of heart disease is four times* more common in males than in females. The disease is more prevalent in certain families, and seems to occur most commonly in the forties and fifties. In some cases it begins in the thirties or even late twenties.

The true cause of coronary artery disease is still somewhat mysterious. However, people who live on a high fat diet, supplemented with highly refined foods, seem far more likely to develop coronary artery disease. *Those who choose a plain diet, low in fats, seem less likely* to develop this disease. **Cholesterol** is also an important factor, many victims of heart disease have a high cholesterol level in the blood. A plain, sensible, well balanced diet free from animal fats will help one to avoid many of these serious complications.

Certain factors predispose one toward coronary artery disease. Among these are diabetes mellitus, hypothyroidism, obesity, and old age. *People who smoke heavily are far more likely to develop* coronary artery disease: their life expectancy may be lowered from five to ten years or more. Patients with heart disease should learn to live on a plain, sensible diet, and *avoid the use of tobacco,* if they really want to stay out of trouble.

**Angina pectoris** *is a sharp, stabbing, or crushing pain felt* mainly in the chest. Sometimes the pain is also felt in other areas, such as the left shoulder, arm, or jaw. These pains are brought on either by exercise or by emotional stress. They can be quickly relieved by rest, or by dissolving a **nitroglycerin** tablet under the tongue. These *are the pains of* **coronary insufficiency**. *The coronary* arteries are no longer able to supply enough blood to the heart muscle for the amount of work to be done. As long as the individual does not exceed the normal limits of exercise, he remains free of pain. But once beyond this point, nature lets him know that he must slow down and rest. *These sharp pains are a valuable alarm mechanism,* warning the patient not to exceed his limits, or he will suffer more severe heart damage.

Sometimes the angina comes on when climbing stairs, walking against the wind, or passing through some period of excitement. Anginal pains may also be felt after taking a heavy meal. They are often associated with gall bladder disease.

These pains are described as squeezing or crushing, and may last from twenty to sixty seconds. Any pain lasting *much longer* than this may be due to that more serious condition, coronary thrombosis.

In some cases the electrocardiogram may show certain changes, particularly during the time of pain This is more likely if the heart has become enlarged owing to an elevation of blood pressure

**Treatment** *Do not try to do too much* Learn to live with this condition If you feel a sharp pain in the chest after moderate exercise, nature is probably telling you not to exceed your limit of tolerance. *Nitroglycerin* is the most useful medicine we have for controlling angina pectoris This little tablet is dissolved under the tongue and quickly relieves the pain Angina patients should always carry a few nitroglycerin tablets with them There is no danger in using nitroglycerin, and in many cases it may be truly life-saving

Patients with angina *should not smoke* They should also abstain from coffee and alcohol In more severe cases blood thinning medicines, such as Coumadin, should be used Some mild sedative should be given three or four times daily to reduce nervous tension and relieve the heart of unnecessary strain. The use of oxygen, particularly during the hours of sleep, may help to ward off further attacks. Longer acting medicines, similar to nitroglycerin, such as Peritrate, will help to dilate the coronary vessels and increase the flow of blood to the heart muscle itself

**Coronary thrombosis** Acute coronary thrombosis, or coronary occlusion, is one of the most serious conditions affecting the heart. In most cases there is very severe pain and often a state of shock Another term for this is *myocardial infarction* Coronary thrombosis is far more serious than angina (described above) where the pain is only temporary and is due to an insufficient amount of blood supplying some portion of the heart muscle In a true heart attack due to coronary occlusion, the blood supply is completely cut off to some area of the heart wall

In some cases a large clot of blood may form over part of the inner surface of the heart Fragments may then break off and be carried by the blood stream to the lungs, the brain, the kidneys, and other organs The blood clot itself is known as a *thrombus* A fragment broken off is called an *embolus* If the trouble occurs on the outer wall of the heart, an *aneurysm* or bulging may occur, interfering with the normal action of the heart. The greatest danger from serious complications following a heart attack occurs during the first two weeks

**Symptoms** The patient usually complains of severe crushing

pains in the chest There is a feeling of heavy pressure as if the patient is being held in a vice. This pain is *not* relieved by nitroglycerin It may continue for hours or days as a crushing pain, and there may be extreme *shortness of breath* and possibly *nausea, vomiting,* and *hiccups* This may then be followed by extreme weakness and fear of impending death The skin is pale cold, and moist, and the lips bluish in colour The pulse is usually weak and slow, and may be irregular if there is change of rhythm within the heart.

Most patients with heart attack manage to survive at least two or three days, and then slowly begin to improve. A few may not pull through even the first severe bout of pain. Unfortunately, second and third attacks are common when the coronary arteries are narrowed by disease

**Diagnosis** A correct diagnosis is most important Other chest conditions, such as pleurisy and inflammation of the chest wall also cause severe pain Naturally the treatment for these is far different The electrocardiogram is valuable in all cases and should be taken every day during the period of severe pain In a few patients there may be little change until after several days have passed Most patients complain of fever, and there is an increased white blood count, as well as an elevated sedimentation rate and *transaminase* test Changes in these tests may occur in other serious conditions, such as pericarditis, embolism to the lung dissecting aneurysm of the aorta, and even peptic ulcer and acute conditions of the pancreas and gall bladder Hence the importance of a correct diagnosis in anything involving the heart and great vessels.

**Treatment:** Pain and shock must be relieved at once, either with morphine or some other powerful pain killing medicine The patient should be given oxygen continuously at first Intravenous fluids such as 5% glucose or dextrose are useful when the blood pressure is low and the skin cold and clammy To combat shock and keep the blood in circulation a plastic catheter may be placed in the vein so that the patient can be given a continuous drip for several days.

Certain medicines, such as Heparin, Coumadin, and Bicoumarol are given to prevent further clotting The patient should be kept in bed for four to six weeks to allow the heart to heal. The length of time resting in bed will depend on the patient's health and the extent of his injury

During the first two weeks the patient should rest quietly in

bed, with the head and shoulders slightly elevated He should not exert himself in any way If he must be moved or turned, others must do it for him If he has difficulty in using the bed pan, a commode can be placed beside the bed and he can be helped onto it But he must not exert himself in any way for the first two weeks

Don t worry about bowel movements for the first three or four days following a severe attack Just keep him quiet Later, regularity should be maintained by using a small quantity of mineral oil, milk of magnesia, or some other mild laxative He should be given a soft, easily digested diet, as outlined in the Appendix But he should not attempt to feed himself until he is free of pain, and until all danger of relapse has passed

By the middle of the third week he can feed himself in bed At the end of the fourth week he may sit up in a chair a few minutes several times a day Thus by gradually increasing his activity, he will eventually be able to return to his regular work after a period of three or four months However, he will have to **live at a slower pace** and avoid over exertion He should **avoid smoking** permanently

Recovery from a heart attack is slow and tedious But with good nursing care, most heart patients will make a satisfactory recovery To do so, the patient must develop an entirely new approach to life.

## *Heart Failure*

Heart failure is a serious condition that develops when the heart is no longer able to carry on its normal work. It occurs in most patients with serious heart disease at some time or other in the course of their disease

The heart has only one function—to pump the blood stream and keep it circulating through all parts of the body When the heart is tired or weakened by disease, the blood stream tends to slow down and fluid will gather in certain areas, particularly the ankles and legs. The lungs may begin to fill up with fluid, making breathing difficult

**Cause** Heart failure may arise from a number of different conditions, such as high blood pressure, coronary thrombosis, kidney disease rheumatic fever, diphtheria, and low thyroid activity Anything obstructing the normal flow of blood such as mitral or aortic stenosis, will eventually produce severe heart failure.

This condition of **hyperventilation** syndrome often involves fainting and dizziness Such people should *breathe into a paper bag* the moment this strange feeling comes on. Breathing the same air several times in succession will quickly raise the carbon dioxide level in the blood stream and restore the normal chemical balance of the body

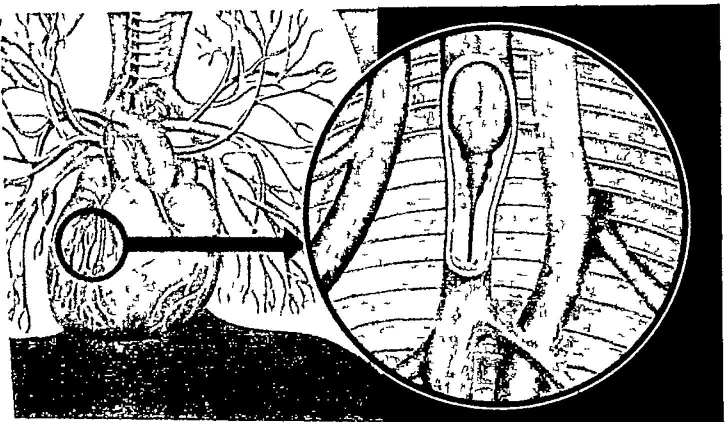
**Treatment for fainting** Keep the patient *lying flat* with the *head low* and the feet slightly elevated until he regains consciousness. This may be all the treatment he needs However, he should see his doctor to be sure there is nothing more serious The doctor will want to rule out heart disease, high blood pressure, and other conditions such as diabetes.

People who suffer from fainting spells should *avoid extra exertion* on hot days A well balanced breakfast in the morning, followed by regular meals at midday and night will help to keep the blood sugar at a normal level all through the day A good programme of exercise will help the blood vessels to maintain their normal tone. But all such activities should be done in moderation, especially after some prolonged illness

**Dizziness** sometimes arises from inflammation of the inner ear, or labyrinthitis It may also be felt when the knees or other joints are weak, especially after a long period in bed **Alcohol** is a common cause of dizziness. Excessive drinking always interferes with the body's normal functions, particularly one's ability to balance. *It affects the* brain and interferes with normal transmission of nerve impulses.

Fever is another cause of dizziness. Motion sickness or **sea sickness** is a type of dizziness due to overstimulation of the body's mechanism for balance. It is common in people who travel, especially if they watch objects passing the car or train

Hardening of the arteries may produce feelings of dizziness. **Meniere's disease** is particularly common in older people. In most cases it is due to congestion of the tiny semicircular canals (organs of balance) in the inner ear Even tumours at the base of the brain may cause dizziness So will wax in the ears in some cases. The wax presses against the ear drum, stimulating the organs of balance. Any lack of oxygen to the vital organs of the body may cause feelings of dizziness. Dizzy spells are very common during the menopause or change of life. The treatment for this is discussed on page 584



Drawing illustrates a coronary thrombosis which results from a blood clot in one of the coronary arteries. This deprives the heart muscle of its normal blood supply. Picture on right shows how clot forms in narrowed vessel.

*Irritable Heart*

**Palpitation** of the heart is a common problem causing real discomfort in the heart and chest Palpitation is described as a kind of "bumping" feeling in the chest It may arise from a number of different causes, most of which are not related to the heart itself This is *not a true heart attack* Anything that increases the work load of the heart may bring on these feelings of discomfort Some people experience palpitation when lying on the left side, because the heart is nearer the chest wall in that position Palpitation is a nuisance, but rarely serious

Many nervous people suffer from palpitation, but this does not mean they have heart disease A nervous person may be unduly concerned because some friend has recently died of a heart attack Soon every minor discomfort is viewed with alarm Such problems do not arise from the heart itself, but from a highly active imagination It would be well to have an electrocardiogram made though if the palpitation occurs very frequently If after you have had a complete examination your doctor has found nothing wrong you have little to fear But if you do have something wrong, the sooner treatment is started, the better

**Heart block** occurs when the electric waves of the heart are slowed down or interrupted in some portion of their normal pathway In some cases this may interfere with the regular rhythm or motion of the heart. This interference may be due to some serious condition in early life, such as rheumatic fever or scarlet fever In later life it is probably due to hardening of the arteries A correct diagnosis is important before treatment can be effective Hence an electrocardiogram should always be made There are several useful medicines that will improve the rhythm of the heart, but these must be prescribed in the right dosage by your own physician

**Sinus tachycardia** or racing heart is an annoying condition, the cause of which is not always clear The heart rate may increase because of severe emotional strain, heavy exercise, lack of sufficient oxygen fever, hæmorrhage, and various infections. If the rate is very rapid (over 150 beats per minute), the heart itself may not have time enough to rest between beats This cuts down the efficiency of

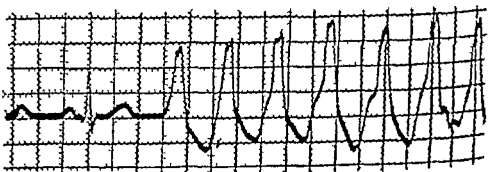
the heart and slows the circulation of the blood throughout the body A rapid heartbeat is more serious when there is some inflammation of the heart muscle itself, such as in rheumatic fever or coronary thrombosis

**Treatment** Some mild sedative, such as phenobarbital, may be all that is needed to control an irritable heart. Some people can slow down the rapid rate by merely pressing over the *carotid sinus* on one side of the neck just below the angle of the jaw This may quickly relieve the attack Others have found that *tickling* the back of the throat or pressing on the eyeballs may also bring the heart rate back to normal Although this rapid heartbeat is annoying, it is usually not serious, provided it does not occur too frequently or carry on too long If the rapid beating is due to congestive heart failure, it can sometimes be controlled by digitalis Many people have found relief by eliminating such things as tobacco, alcohol, tea, and coffee. It is always wise to have an electrocardiogram made just to be sure no serious condition exists.

ABNORMAL ELECTROCARDIOGRAMS

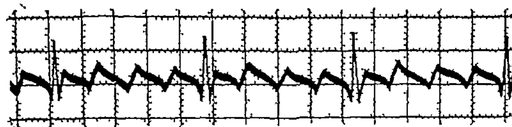


PAROXYSMAL ATRIAL TACHYCARDIA (Usually not serious)

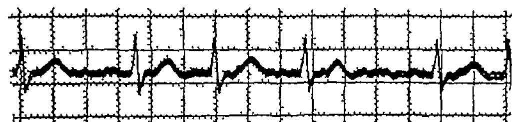


PAROXYSMAL VENTRICULAR TACHYCARDIA (Indicates advanced heart disease)

## ABNORMAL ELECTROCARDIOGRAMS



FLUTTER



FIBRILLATION

**Fibrillation.** Atrial fibrillation is an *irregular* heartbeat often associated with such conditions as rheumatic heart disease, *excessive* thyroid activity, and coronary artery disease. When the rate is very rapid and irregular there may be a feeling of palpitation, fainting, weakness, and nausea. When the pulse is very weak and irregular the blood flow to such vital organs as the kidneys, lungs, and brain may be greatly reduced. In other words, an irregular heart is less able to maintain the normal circulation of blood throughout the body. There is also the danger of a blood clot forming in the heart, and a fragment or **embolus** being carried to the lungs, kidneys, and brain, perhaps producing some serious condition such as a stroke.

**Treatment.** Most doctors use *digitalis* to control an irregular heart. *Quinidine* is also useful in changing the rhythm back to its normal rate. Although in some cases the heart rhythm may never be restored to its normal regularity, most of these people can get along fairly well provided the heart rate remains around 70 or 80 beats per minute. The patient should try to avoid colds and all other types of stress.

*Pericarditis*

**Pericarditis** is an inflammation of the pericardium—the tough, fibrous bag which surrounds the heart and protects it from injury. Pericarditis may sometimes follow a severe throat infection or an attack of rheumatic fever. It is frequently seen in advanced tuberculosis. If there is bleeding or hæmorrhage into the pericardial sac, this may interfere with the normal motion of the heart. *Chronic constrictive pericarditis* means that the pericardium has become attached to the surface of the heart itself. This may result in congestive failure discussed on page 260.

Pericarditis is often associated with *coronary thrombosis,* when the injury to the heart muscle has extended to the surface of the heart. In such cases, anticoagulant drugs or blood thinning medicines must not be used or there may be severe hæmorrhage into the pericardium.

In certain chronic conditions, such as advanced tuberculosis, the pericardial sac may become distended with fluid. This is known as *pericardial effusion* and usually follows some serious infection. It may also occur in myxœdema (low thyroid activity).

**Treatment.** *In most cases the swelling or effusion in the pericardium* will more or less disappear as the underlying disease comes under control. If not, it may be necessary to pass a long needle into the pericardial sac and withdraw the fluid. Even surgery may sometimes be needed to relieve a severe case of chronic constrictive pericarditis.

# DISEASES OF THE BLOOD-VESSELS

Blood circulates within the body through a special network of living tubes or pipes known as arteries, veins and capillaries The blood leaving the left side of the heart is carried out to the tissues through the aorta and its numerous large, then smaller, branching arteries and finally through the tiny capillaries that actually feed the individual cells of the body

After leaving the capillaries, the blood travels in tiny vessels or veins that merge into ever larger veins until it finally reaches the right side of the heart. From there it is carried to the lungs where it receives a fresh supply of oxygen, and then back to the left side of the heart, thus completing the full circulation of the blood

In the arteries the blood is pumped under pressure which can be readily measured by means of a blood pressure cuff, the normal pressure being 120/70 Blood flowing through the veins is not under any pressure but finds its way back to the heart with the aid either of valves in the veins and the contractions of our muscles or the breathing motions of the chest

When an artery is cut, the blood shoots out in spurts according to the rate of the heart When a vein is cut the blood runs out in a steady stream under no pressure This is the difference between the two sides of the circulation, both of which are equally important to the body

### *Hardening of the Arteries*

Like all other tissues the blood vessels are subject to certain disease conditions. One of the most important is known as **arteriosclerosis** or hardening of the arteries. This means a thickening or hardening of the vessel walls, due to the presence of calcium or lime. This hardening process is usually preceded by **atherosclerosis**, a kind of degeneration or *softening* of the inner lining of the vessel walls. The most dangerous places for such softening are in the coronary vessels



That warm red liquid we call blood is a most remarkable substance for on its health and adequacy our life depends.

of the heart itself (discussed on page 251), and in the arteries leading to the brain

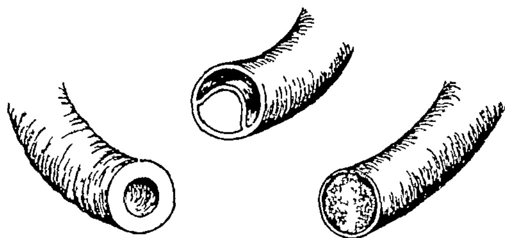
This softening usually begins on the inner lining of the vessel and may extend through to the elastic portion, weakening the wall and perhaps forming an aneurysm, or bulging of the blood vessel walls When the coronary vessels are involved, the disease is very serious, for it may result in coronary thrombosis, which accounts for more deaths than all other diseases combined

**Cause** Although the true cause of this softening and later

hardening of the arteries is not yet clear, we do know that a high fat diet, rich in **cholesterol,** is often related to this disease. Hardening of the arteries is more frequently seen in certain conditions such as diabetes, hypothyroidism, xanthomatosis, and nephrosis People who are **overweight** are more likely to develop hardening of arteries

The type of fat is also important Fats may occur as either oils or solid fats. Generally speaking, oils are *unsaturated* while solid fats are *saturated* These chemical terms refer to the arrangement of molecules in the fat. Saturated fats are found in all forms of meat, egg yolk, milk fats, and solid vegetable shortening These fats tend to raise the level of cholesterol in the blood stream On the other hand, unsaturated fats, such as soya bean, safflower, ground nut, sesame (gingili), cotton seed and maize oils may even *lower* the blood cholesterol level This much is certain—people who live on a *low fat diet* seem to have fewer strokes and heart attacks.

But diet alone is not the complete answer, for some people with a normal cholesterol level have heart attacks. Again, there are differences between the sexes, men being more prone to develop arteriosclerosis People with high blood pressure are also more likely



1. A normal artery has a smooth and flexible wall. 2. Arteriosclerosis is caused when large fat deposits partially block the artery 3 When a large thrombus completely blocks the artery the muscle fed by that artery dies.

to have hardening of the arteries, possibly because of the wear and tear on vessels due to the high pressure. Even *emotional stress* plays an important part. Heart attacks are more common during periods of mental and emotional stress, particularly in those engaged in sedentary occupations. Since this disease runs in families, hereditary factors must also be considered.

**Signs of trouble.** When vessel walls are damaged by disease, blood can no longer flow freely through the vessel. Clots may then form, completely blocking the vessel or reducing the blood flow to the area. If the coronary arteries are involved, the patient may have sharp pains of **angina** or the much more serious condition known as **coronary thrombosis**. These are discussed on pages 252 and 253.

When the arteries leading to the brain are involved, the vessel may burst, causing a hæmorrhage into the brain tissue. Or it may be blocked with a blood clot, causing a cerebral vascular accident or **stroke**, with partial or complete paralysis of one side of the body.

Many elderly people suffer from personality changes. They tend to become confused and forgetful and have no memory for recent events. There may be a series of **little strokes** with gradual deterioration of the brain tissue. It is a sad picture so often seen during the later years of life. Unfortunately, little can be done when the injury to the vessel occurs within the brain itself. However, if the blockage occurs in a large vessel in the neck, the clot can often be removed and the individual restored more or less to normal. All this is discussed more fully in chapter 53.

Pains in the legs, coming on after walking a moderate distance, often arise from narrowing of the blood vessels leading to these areas. This is the condition known as *intermittent claudication*. If the vessel becomes completely blocked, gangrene may result and the toes become dark and cold. This is most frequently seen in cases of uncontrolled diabetes. If arteries leading to the kidneys are involved, the patient may suffer from high blood pressure, as shown on page 246.

**Treatment.** Although we still have no actual cure, we can do something to *prevent* this disease. **Weight control** is most important, particularly in those who are obese. A low fat diet will help to reduce the weight and lower the cholesterol level of the blood. The use of unsaturated vegetable oils, such as kardi, gingili, or ground nut oil will also help. Fish oils also have a beneficial effect on the vessels, but it is best to avoid products containing large quantities

of coconut oil Moderate **exercise**, especially walking, is useful If the blood pressure is elevated, this should be treated as suggested on page 247 It is wise to give up the use of **tobacco**, particularly cigarettes Above all, moderation in all things is essential.

Certain medicines, such as nicotinic acid (not to be confused with nicotine in tobacco) and thyroid extract, seem to help this condition and lower the cholesterol level in the blood stream Someday a hormone substance may be found that will actually reverse this condition Meanwhile, the wise will avoid everything that destroys the body, good health depends largely on how we choose to live.

### *Aneurysm*

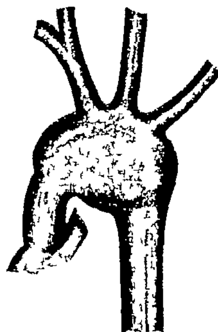
An aneurysm is a localized enlargement of a blood vessels such as the aorta It may be due to inflammation as in syphilis, or to some weakness in the arterial wall caused by arteriosclerosis and hyper tension

Large aneurysms or swellings of the aorta are usually due to arteriosclerosis. The most serious type of vessel enlargement is known as the **dissecting aortic aneurysm** In this condition some of the blood may be forced partly through a crack in the vessel wall, thus opening a double channel and hindering the normal flow Sometimes this condition arises from wear and tear on the arterial wall due to high blood pressure or perhaps germ infection or congenital weakness.

Any injury to the chest, such as a knife or bullet wound, or a severe blow over the chest wall, may produce an aneurysm, either of the aorta or one of its larger branches The condition occurs ten times more frequently in males, perhaps on account of heavy manual work and the greater likelihood of injury Aneurysms are often seen in the vessels in the brain, probably owing to weaknesses existing from early life One of these aneurysms in the brain may gradually enlarge and press on surrounding tissues, causing serious trouble in the central nervous system, such as paralysis, or weakness on one side of the face or body

If such an aneurysm ruptures, there is likely to be a sudden flooding of the area with blood and the patient may collapse and die On the other hand, there may be only periodic oozing from the aneurysm, causing minor trouble in the area but continuing over a long period of time.

**Treatment:** Much will depend upon the location of the swelling



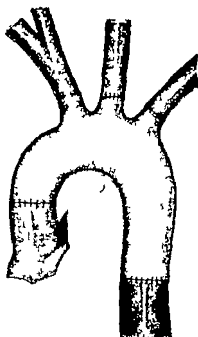
Aortic aneurysm before surgery Note the greatly dilated artery

or aneurysm If the swelling is located at the beginning of the aorta, syphilis should be suspected and adequately treated If there is a large swelling in the arch of the aorta, it may be possible to remove the damaged segment and replace it with a plastic graft. The same is true if the aneurysm is found in the abdominal aorta or one of its larger branches leading to the lower extremities Aneurysms occurring within the vessels of the brain can also be treated surgically, provided the diagnosis is made in time The results are often surprisingly good This is discussed more fully on page 504

*Phlebitis*

Phlebitis means inflammation of a vein, occurring most frequently in the lower extremities. One very serious form is known as milk leg, a condition sometimes following childbirth particularly if there has been some injury to the pelvic veins.

Trouble usually begins with the formation of a clot in one of the veins of the calf or foot. The clot itself may completely block off the vein preventing any flow of blood from that area Part of the



**Aortic aneurysm after surgery** The defective artery has been replaced by a new graft. Special skills and equipment are needed in operations of this magnitude.

clot itself may then break off and lodge in the lungs as a **plumonary embolus,** a very serious complication that should be prevented if at *all possible. In the leg itself there is usually considerable inflammation,* especially around the vein involved The inflamed area feels hot and may be red swollen, and tender

**Treatment** Good nursing care is most important The **heating cradle** described in the appendix is of value in treating this condition The patient should **remain in bed** for at least one week. It is important not to massage the leg as this may force more clots out of the vein to lodge in the lungs Hot water bottles or warm moist packs will usually relieve the pain in the leg to some extent, especially if there is a large area involved **Anticoagulants** or blood thinning medicines are of value in treating this condition and in preventing further complications due to an **embolus** After about a week the patient can usually be allowed up, provided his temperature is normal and his condition satisfactory He should continue on anticoagulants for at least another month. An **elastic bandage** will give support to the inflamed area, especially during the time the patient is out of bed. He should wear the elastic bandage as long as there is any tendency to swelling

**Surgery** If the phlebitis appears to be creeping up toward the heart, surgery may be indicated The vein should be ligated or divided above the area of infection, preferably up near the groin, for it is difficult to know just how far the clot has already extended. Such surgery may save the patient s life

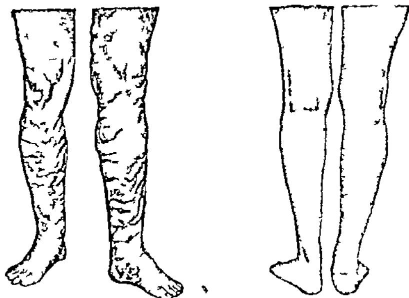
**Prevention.** All bedridden patients should move the legs as often as possible. It is not a good practice to allow bedridden patients to put a pillow behind their knees This discourages movement and puts added pressure on the veins behind the bend of the knees, thus slowing the circulation. Patients with congestive heart failure should be instructed to move their legs often while lying in bed. This will help to keep the blood circulating When they can be up and about they should take gentle exercise, such as walking, to maintain good circulation in the lower limbs. Patients with varicose veins should be treated as suggested below

## *Varicose Veins*

As the blood returns to the heart it passes through special thin-walled channels called *veins* Unlike the strong, tough arteries, these vessels are easily distended You can demonstrate that by pressing your finger on a vein on the back of your hand and watching it swell as the blood builds up behind it Blood flowing from the head and upper chest flows *downward* toward the heart. On the other hand, blood coming from the lower extremities must flow *upward* To make this possible, nature has provided valves in the veins so that the blood can flow only toward the heart, never in the other direction

In your legs you have two main sets of veins The deeper veins are located within the muscles where they are given good support. But the veins on the surface just under the skin have little support and are easily damaged These surface veins are often subject to inflammation or phlebitis

In some people the veins in the legs are weak and may swell easily Varicose veins, as this ailment is called, seem to run in families. Then again anything that increases the pressure in the pelvis or abdomen may slow the flow of blood back to the heart from the lower extremities One frequent cause of varicose veins is pregnancy another is obesity Anything that increases the pressure within the



Varicose veins may cause serious trouble They should be treated properly

veins of the legs and thighs may weaken or break down the little valves, so that the veins become enlarged and the blood does not find its way back to the heart as it should

Varicose veins are ugly, and sometimes they are dangerous. A blood clot forming within a greatly dilated vein may break off and travel to the heart and lungs This serious condition, known as **pulmonary embolism,** may actually cause death Serious hæmorrhage may occur if a large varicose vein is torn open or cut. Some people have actually bled to death, not knowing what to do in such an emergency Steady pressure over the bleeding point, as suggested on page 111, will usually control the bleeding But one should avoid such a danger by having the veins properly treated or removed.

**Signs of Trouble** People with varicose veins first note swelling along the course of the veins, followed by muscle cramps and a tired feeling in the legs behind the knees In some cases the skin over the lower part of the leg may break down, forming a large, ugly ulcer, which is often painful, especially when thrombophlebitis develops in the leg

**Treatment:** In most cases surgery is the best treatment, especially when the larger veins of the legs and thighs are involved Long,

tortuous, winding vessels can easily be removed by vein ligation and stripping Smaller veins can often be successfully treated by injections.

To avoid further trouble, one should not wear any elastic bands around the legs, for this will only increase the problem Special stockings and elastic bandages are useful as a temporary treatment, but they are not comfortable enough for regular use over a long period.

Varicose **ulcers** need special care The patient should rest in bed, with the legs elevated so that the heel is higher than the knee. Antibiotic ointments are useful in treating the local cellulitis or inflammation Also the heating cradle, described in the appendix, will help to protect the leg from further injury, and the gentle heat will help to heal the skin Some ulcers do better with moist heat, others with dry Both methods may be tried Keeping the leg elevated will reduce swelling by helping the blood return to the heart Large, deep ulcers and badly scarred areas may need a graft of fresh skin over the area before they will heal completely

## *Buerger's Disease*

Buerger's disease is a painful disorder of the toes and feet It is most commonly seen in younger adult males **Excessive smoking** is the most frequent cause of this painful disease

The patient usually complains of coldness, and tingling or burning in the feet or toes In rare cases it may also involve the fingers or hands In the early stages this discomfort is usually relieved by a period of rest, but quickly returns with mild exercise The toes and feet appear red or dark, while the skin above may look more pale than normal **Gangrene** and ulceration may then develop

**Treatment** The patient must abstain from the use of tobacco in any form for the rest of his life He must also avoid extremes in temperature and injury from poorly fitted shoes Fungus infections of the feet should be treated, for they will always aggravate the condition Complete rest in bed over a sufficiently long period may allow the ulcerated areas to heal

These special exercises should be carried out as part of the patient's general care While he is lying down elevate the legs at an angle of about ten or fifteen degrees and keep them there for ten seconds, then lower them over the edge of the bed for three minutes. Let rest for two minutes with the legs lying flat. Repeat this routine

at least ten tunes Then allow the patient to rest. Do this at least four times a day

Anticoagulant therapy may also be tried the dosage being similar to that used for heart surgery Again we must repeat—any patient with Buerger s disease or other leg pains should definitely **give up smoking** and never again touch tobacco in any form

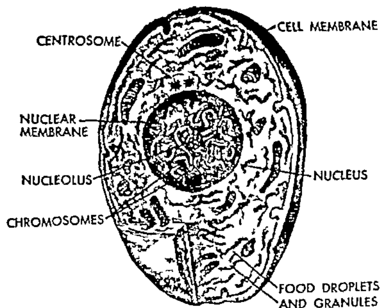
# DISEASES OF THE BLOOD

Did you cut your finger today? If so, you saw something that has fascinated scientists for years That warm, red liquid we call blood is a most remarkable substance made up of many different things For centuries doctors have been studying all these elements and how they work together in the body

The old saying "blood is thicker than water" is literally true. Human blood is *five* times thicker than water That is why your blood has to be pumped under high pressure to be kept in circulation The blood flowing in your veins and arteries is really a living tissue A little less than half of it consists of **red blood cells** whose job it is to carry oxygen to the tissues The red blood cells also remove the excess carbon dioxide from the system, as outlined on pages 51 and 234

Your blood stream also contains **white cells**, several important groups of them They are not nearly as numerous as the red cells, but they are highly important in a different way, for they protect you from harmful germs that would quickly destroy you Two types of these white cells, the *leucocytes* and *monocytes* actually devour germs and destroy them But in so doing, these white cells also die and form **pus** within an *abscess* or swelling under the surface of the skin Some of your white cells die that you might live. Other white cells, such as the *lymphocytes,* also play an important part in maintaining your body's resistance against disease They can change into other forms of cells to meet the needs of your body and keep you well.

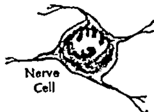
Still another group of white blood cells, known as *eosinophils* are most numerous during allergic conditions. Somehow they help the body to handle various toxic substances in the intestines. They are very numerous in the blood stream of people who suffer from *trichinosis,* an infection that often follows the eating of poorly cooked pork, and also in *schistosomiasis* a parasitic infection of the tropics. The *basophils* have a different function. They apparently liberate




GENERALIZED ANIMAL CELL

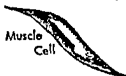
**GENERALIZED ANIMAL CELL**

Living cell showing muscles, cell membranes, and chromosomes.






Nerve Tissue






Muscle Tissue

Different types of cells, showing their structure and function within the body






Skin Tissue



Cartilage Cell



Embryonic Cell



Gland Cell

F 18.

heparin into the blood stream, and thus prevent the blood from clotting They are especially important in cases of prolonged inflammation.

All these various cells make up about 40 per cent of the blood. The other 60 per cent of the blood is known as **plasma**, the liquid part of the blood The plasma contains many different types of proteins such as albumin globulin, fibrinogen It also contains many other important chemicals, including various salts and food elements, such as glucose that provides energy and fuel for all the cells. Thus we see that blood is not a simple liquid but a very complex substance. All these different elements must be kept in constant balance so that the body will have whatever materials it needs in just the right amount at the right time to keep you well

*Anæmia*

About five and a half quarts of blood circulate through the veins, arteries, and organs of your body This rich red stream is kept in constant circulation by your heart. When things are going well you hardly think about this But there are times when the blood volume may be so altered that the number of red cells in your circulation drops down a long way below the normal 5,000,000 per cubic millimetre of blood This is the serious condition known as **anæmia.**

There are several ways in which this may happen For instance, a hæmorrhage A person whose blood level has been normal may suddenly lose a lot of blood because of a serious accident or illness. The body seeks to replace this sudden loss by pouring in more fluid or plasma But the red cells are not so easily replaced The victim may have enough fluid in circulation, but the red cell count may be so low that he feels weak and worn out on the slightest effort. This is the typical picture of anæmia following a rapid loss of blood.

However, **slow bleeding** from an ulcer in the stomach or intestine may also produce varying degrees of anæmia If the red blood cells are lost more rapidly than the body can replace them, the patient will naturally begin to feel the effects of anæmia A slow, steady loss of red blood cells through the urinary tract will do the same thing Anæmia also occurs from **heavy menstrual bleeding** And the woman will feel tired and weak from lack of blood

In some cases, such as in **hæmolytic anæmia,** the blood cells are too fragile. They seem to be sensitized in some way, so that large

numbers of them are destroyed in the spleen In **malaria** parasites attack the red cell, feed on the substance of the cell, and later divide into eight or sixteen new organisms that in turn invade other red cells Certain metals, such as lead, arsenic, silver, may also destroy red cells. For some patients, the same is true of quinine and certain other drugs

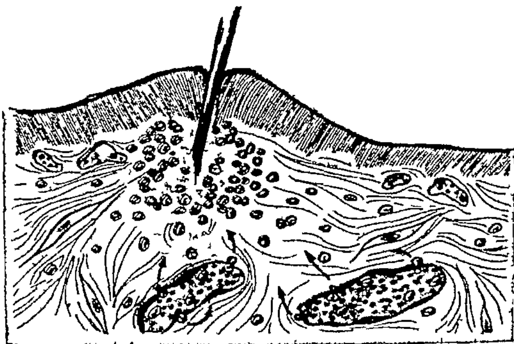
In other types of anæmia the red cells are not properly formed Instead of being round and flat like a plate, they may be roughly spherical or irregular They may then cause trouble in the spleen, and ulcers may develop in the legs, along with changes in the bones. In some rare types of anæmia the hæmoglobin itself is not properly formed, so it cannot carry out its normal functions Such cases are very difficult to treat

**Sickle-cell anæmia** is a major problem to some people of African descent. In this disease the red cells assume the shape of a sickle and this tends to hinder their passage through the capillaries. Not only do these patients have severe anæmia, but there are times when they may also have jaundice and pain in the joints Unfortunately, we still have no good home treatment for a severe case of sickle-cell anæmia. During an acute crisis such cases are best treated in hospital Cortisone may help in some cases for a while, but the outlook is not good Sickle-cell patients should not go up into high altitudes, because the lowered oxygen in the atmosphere may bring on a severe attack.

**Pernicious anæmia.** In this form of anæmia the blood cells are larger than normal, but fewer in number Instead of 5,000,000 red cells per cubic millimetre, the count may drop to 1,000,000 Trouble arises because the 'intrinsic factor' normally produced by the stomach is not present to promote the absorption of vitamin $B_{12}$ from the intestine This disease was once very serious, but not today Frequent injections of vitamin $B_{12}$ will usually restore these patients to somewhere near normal

**Iron-deficiency anæmia.** Sometimes the level of iron in the body may be lowered, owing to chronic blood loss, as mentioned on previous pages, or more probably to a *poor diet* Iron may also be lost from the body because of **chronic diarrhœa** and other conditions such as **sprue** (See pages 344 and 349 ) Any patient with a severe hookworm infection will also have some anæmia.

Iron may not be properly absorbed because the stomach is not producing sufficient hydrochloric acid Sometimes this occurs during



White blood cells devouring germs that are multiplying around the end of a splinter Blood vessels are shown in red.

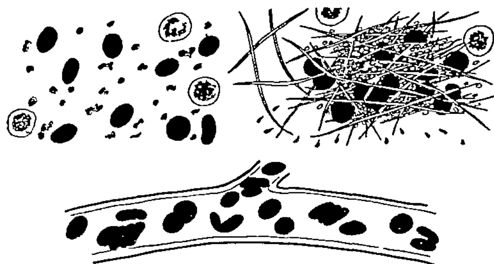
**pregnancy** Unfortunately, it not only affects the mother but also the baby Severe iron deficiency anæmia is seen in babies who are kept on a milk diet too long Iron is also lost through excessive menstrual bleeding This is often the reason why some younger women are weak and tired.

The patient usually complains of *weakness* easy fatigue, and *irritability* Other symptoms include *heartburn,* flatulence, vague abdominal pains, *soreness in the mouth,* numbness and tingling in the extremities, and *palpitation* of the heart. The skin and mucous membranes are pale, the nails are often brittle, and there are fissures or sores at the corners of the mouth. In this form of anæmia the red cells are smaller than usual and often irregularly shaped The **treatment** for this condition includes a correction of the diet by foods containing iron, as suggested on page 52 The patient should also be given some simple iron preparation, such as a tablet of ferrous sulphate twice daily Bleeding ulcer should be treated or removed by surgery Excessive loss of blood through menstruation can now

be controlled by suitable medications, but these can be given only under the direction of your doctor

**Bone marrow anæmia.** Many different factors may interfere with the normal production of red cells in the bone marrow Infections, inflammatory conditions, rheumatoid arthritis, tumours of various kinds, cancer of the bones, and certain toxic substances—all of these may contribute to bone marrow failure X rays, atomic explosions, and radio-active substances may also be added to the list, they are likely to become more common.

In bone marrow anæmia the patient feels tired, his skin is pale and waxy in appearance. He may have hæmorrhages under the mucous membranes around the eyes His blood count may drop below 2,000,000, and his white blood count may also drop from a normal of 7,000 per cubic millimetre to less than 1,000 In treating such a condition the cause must always be determined The patient should avoid any medication to which he is allergic Blood transfusions are often needed in these cases. Vitamin $B_{12}$ injections may help to restore the normal activity of the bone marrow, provided it



Upper left shows large white cells (with granules) also a few red cells and platelets. Upper right Blood clot forming from strands of fibrin and small platelets. Lower shows red cells in small vessel.

has not been damaged beyond repair by radio-active substances, such as from an atomic bomb Doctors are now attempting to transplant bone marrow from one person to another in the hope of solving this serious condition, should we ever be faced with real atomic war

**Polycythæmia.** True polycythæmia is a slowly progressive disease in which there are too many red cells, so that the blood becomes dark and rather thick. The red blood count often rises from the normal 5,000,000 to over 10,000,000 per cubic millimetre. The true cause is unknown Usually the patient complains of headache, weakness, dizziness, abdominal pains, and other distressing symptoms. Strokes are fairly common, and massive bleeding in the stomach may occur The skin appears dusky and blue (cyanotic), particularly in cold weather Some patients with polycythæmia also suffer from gout. Polycythæmia sometimes occurs in congenital heart disease and also in chronic diseases of the lungs

The best treatment is phlebotomy in which some of the blood is drawn off at fairly frequent intervals The patient must also be carefully watched for serious complications. A newer method is radioactive phosphorus ($P^{32}$), available only at larger medical centres. Though there is still no cure for true polycythæmia, most patients can live a rather normal life if the excess blood is removed frequently

### *Bleeding Diseases*

**Purpura** is a bleeding disease in which the walls of the smaller blood vessels become dilated and thin and then rupture, causing local hæmorrhage Purpura is more common in women It tends to come on in middle life and also to run in families In one type of purpura there may be pains in the abdomen and joints, as well as some kidney disease. The best treatment is to try to stop the hæmorrhage by local pressure wherever possible. Applications of ice over the affected areas may help

**Hæmophilia** is a hereditary disease which usually occurs in young males whose mothers have had the disease in their own family The mother transmits the disease, but does not suffer from it herself Her father and brothers may have had the condition. The disease is due to a deficiency of a certain type of globulin. This results in bleeding into the joints and soft tissues, even after some slight injury

or surgical procedure. There may also be blood in the urine for no apparent reason.

Treatment is directed at keeping the child free from injury as far as possible Transfusions of fresh, whole blood or plasma should be given when bleeding occurs Local applications of fibrin are also of value over the bleeding area Dental extractions are a real problem, but these can be carried out provided blood is available for transfusion, should it be needed

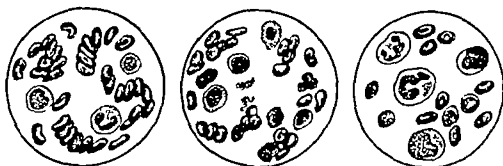
### *Leukæmia*

**Leukæmia** is a serious disorder of the blood forming tissues, the cause of which is still unknown It may be due to some virus At least this has been demonstrated in mice, but not yet in man Leukæmia is a type of cancer of the blood forming organs It may follow excessive exposure to X rays and certain chemicals, particularly those related to the benzene group

There are a number of different varieties of leukæmia Fortunately, none of these are common compared with other diseases. Patients with leukæmia produce an excessive number of white blood cells They may be either granulocytes, lymphocytes, or monocytes

Leukæmia is usually more common in males The patient tends to complain of weakness, fatigue, lack of appetite, and weight loss. He has some anæmia or loss of red blood cells due to the bone marrow being overcrowded with white blood cells The spleen is usually large and tender There may be pain in the bones and hæmorrhages in the skin in various parts of the body The white blood count may rise from the normal 7,000 to 25,000 or even 50,000 In some cases it may rise to over 200,000 The outcome depends largely on the type of leukæmia. Many leukæmia patients are living longer today, thanks to new methods of treatment, but still the outlook is not bright.

**Treatment** Anything that will lower the white blood count will usually help X ray treatments over the spleen, bones, lymph nodes, and other tissues are often effective Radio-active phosphorus ($P^{32}$) may also be tried. Certain drugs may help to depress the overactive bone marrow, but these must be prescribed on an individual basis Prednisolone may help to control the bleeding in the later stages In chronic lymphocytic leukæmia the disease often con



Leukæmia is a type of cancer of the blood forming organs. Patients with leukæmia produce an excessive number of white blood cells. Circle at left shows cells in normal blood. Centre Lymphatic leukæmia. Right Myelocytic leukæmia.

tinues for years It is rather benign, and treatment may cause all evidence of the disease to disappear for long periods of time Blood transfusions are sometimes needed when the blood count drops too low In the more acute cases death may occur within a few months after the onset of the disease Someday we may have a more effective means of therapy

*Hodgkin's Disease*

**Hodgkin's disease** is a chronic condition, the cause of which is still unknown. Swellings in the lymph nodes along the sides of the neck or under the armpits may be the first indication of trouble. Usually there is no pain In some cases the spleen and liver will be enlarged and tender During later stages there is often a high fever and a peculiar bronze pigmentation of the skin These patients also tend to suffer from herpes zoster, or shingles. The diagnosis is difficult in the earlier stages. Unfortunately we have no cure as yet, but X ray therapy may help to shrink down the enlarged lymph nodes and make the patient more comfortable. Good general nursing care, providing a balanced diet of proteins and vitamins, and avoiding excessive fatigue and respiratory infections is still the best mode of treatment.

### *Lymphosarcoma*

Lymphosarcoma is another malignant disease affecting the lymphoid tissues and lymph nodes It is similar to leukæmia and in some respects also resembles Hodgkin s disease, especially in children Enlarged lymph nodes like lumps may be seen and felt on the side of the neck One of these should be removed by surgery and studied by a pathologist. If lymphosarcoma is found, the other enlarged nodes should be removed and the whole area treated with X ray therapy ACTH and cortisone often bring relief to those who are seriously ill with this disease When the disease is widespread the outlook is not good, but each new discovery of medical science is bringing us nearer the day when all such diseases can finally be brought under control

### *Septicæmia*

**Blood poisoning,** or septicæmia is a most serious condition in which toxic or poisonous materials find their way directly into the blood stream and by this means the poisons are spread to all parts of the body The human body has strong defence barriers against inflammatory disease These include the skin, subcutaneous tissues, white blood cells, and antibodies When these are overwhelmed by some serious infection, the toxic materials are absorbed directly into the blood stream, causing localized inflammation, or *cellulitis,* in other parts of the body, such as the lower extremities and pelvic areas.

The spread of infection may be rapid, especially if there is some injury or weakness in the body, or if the patient is in a run down condition Usually there is a fever with chills, weakness, and head ache. The local area may be red, swollen, painful, and hot. Keep the patient in bed and apply hot moist dressings over the inflamed area. Antibiotics, such as penicillin, sulpha, or tetracycline, are advisable. These should be given in large doses until the patient is entirely well

**Lymphadenitis** means an inflammation of the lymph nodes in some part of the body the most frequent places being in the groins and under the arms Apply hot moist packs to the inflamed areas two or three times a day In more severe cases, penicillin should be given the usual dose being 600,000 units daily

# DISEASES AFFECTING THE LUNGS

Breathing is the first law of life. No one can live more than a few minutes without an adequate supply of oxygen We must have fresh air to stay alive

To make this possible, nature has provided us with a remarkable living pipeline—the windpipe, or trachea. If that lifeline were blocked or cut off, we couldn t survive more than a few minutes. Coughing is nature s attempt to keep that lifeline clear But the mere fact of having an open windpipe is not enough Air must be kept flowing in and out of the body This is done by the expansion and contraction of the chest and abdomen

*Breathing Is Automatic*

Although we can take a deep breath whenever we may wish, most of our breathing is quite smooth and automatic This delicate balance of respiration is maintained by various chemical changes within the blood stream. To make sure all this operates smoothly, we have no less than three different centres within the brain just to maintain the rate and rhythm of our breathing If one of these becomes damaged by disease we soon begin to breathe in short gasps. This kind of breathing is not adequate, nor will it provide the body with sufficient oxygen to keep us alive

The air we breathe is composed mainly of two entirely different types of gas oxygen and nitrogen. About one fifth of the air is oxygen This gas must be present and must find its way down through the windpipe to the lungs.

Our lungs are among the most remarkable structures in the whole human body They are light and spongy and capable of expanding and contracting into a very narrow space They are extremely elastic and must remain so or they would be useless. Sometimes they become scarred and infiltrated with fibrous bands, as in some forms

of tuberculosis, asthma, and emphysema This greatly hinders normal breathing and leads to shortness of breath.

The special tube or windpipe that brings air to the lungs is the *trachea* It begins just below the voice-box or "Adam's apple," and extends down to the middle of the chest where it divides into two main branches, or bronchi as they are called One main *bronchus* goes to the left lung and the other to the right. These large tubes soon break up into numerous smaller branches, and these again divide into still smaller tubes called *bronchioles,* which in turn carry the incoming air to myriads of the tiny chambers called air sacs, or *alveoli*

These alveoli, or microscopic air sacs, although compressed within the spongy tissues of the lungs, provide an enormous inner surface over which the air can pass. If they were spread out flat they would cover an area more than 1,000 square feet This is more than 20 times as much surface as the skin on your body Yet all these little air sacs are folded up and compressed into less than one cubic foot of space within your chest.

### *Where Oxygen Is Exchanged*

Inside the walls of these tiny air sacs are myriads of tiny *capillaries,* smallest of all blood vessels The walls of the capillaries are so thin that the molecules of oxygen in the air readily pass through them and into the red blood cells where they unite with the hæmoglobin This chemical merger, called oxygenation, changes the colour of the blood from bluish purple to a bright red At the same time carbon dioxide leaves the red blood cells and is breathed out through the windpipes into the air outside the body

Normally we breathe in and out about fifteen times a minute, the total amount of air inhaled at a time being about one pint. Our lungs hold about six pints of air, so that approximately one sixth of the air is exchanged every time we take a breath. Naturally when we are exercising strenuously a great deal more air will be exchanged

### *Nature's Air Conditioning System*

Before the air enters the lungs it must be warmed and moistened Any impurities present, such as dust, must be screened out, other



Healthy lungs are necessary for all vigorous body exercises.

wise we would soon be ill with pneumonia or some other serious infection.

So we have been provided with a most remarkable air-conditioning system within the nose Here the dust is screened out and the air is moistened and warmed to the right temperature and humidity required by the lungs. If the weather is hot and dry, more fluid must be poured out within the nose and added to the air before it reaches the lungs On cold, damp days some moisture is removed from the air

*Removing Germs*

Germs are dealt with in a different way The respiratory passages are lined with a delicate mucous membrane on which innumerable hair like projections, or *cilia,* are present. Also, numerous small glands produce a thin film of sticky mucus on which dust particles and germs will lodge This mucous film, or "blanket," is constantly moved by the cilia toward the back of the throat so that a new mucous blanket is formed every fifteen minutes. The old one passes down into the throat and stomach where the hydrochloric acid quickly destroys any germs that may be present.

This constant, self-changing mucous blanket is important to our health If the underlying mucous membranes become irritated, the glands work overtime to protect the cells, increasing the production of mucus and flooding the nasal passages When this happens it may be difficult for us to breathe This frequently happens in colds and hay fever

Many people are allergic to various forms of pollen or dust, powders, perfumes, not to mention that plague of modern cities known as smog A most frequent offender is **tobacco** Any person who smokes heavily is likely to cough, because the smoke from the burning tobacco irritates the membranes of the nose and throat. This is the so-called "smoker's cough." Nature is trying to protect these sensitive membranes from irritation and injury Even though there may be no cough, the mucous membranes are often greatly irritated

Something similar happens in other types of allergy **Hay fever** is very common at certain times of the year In the spring the trouble may be due to various forms of fungi floating in the air In summer it may be pollen or dust.

### *Be Careful with Nose Sprays!*

The membranes of the nose and throat are tough, but they can be injured by many things including nasal sprays and nose drops and various medications *when used to excess* A deformed nasal septum may also interfere with the normal exchange of air So will inflammation of the sinuses, or sinusitis. All such conditions should be corrected as soon as possible, for breathing is most important to health

Trouble often extends beyond the nose and throat, down to the larynx, or voice box, causing hoarseness or **laryngitis**. From there it may descend into the lower respiratory tract, causing **bronchitis** and perhaps even **pneumonia**. All of these conditions are described in this chapter or elsewhere in the book

### *The Common Cold*

Although the common cold affects all parts of the body, it usually begins in the nose and throat. Colds are so common we hardly give them a second thought, yet they can be rather serious. Most colds are due to virus infections of one type or another Unfortunately, none of these viruses are susceptible to our present antibiotic medicines. *Adenoviruses* produce the more serious type of colds, and they are often followed by **tonsillitis** and **sore throat** and even **virus pneumonia**, particularly in children. Sometimes the membranes of the eyes are also involved

The common cold is the most prevalent of all diseases known to man The average person seems to have two or three colds a year The condition is *highly contagious* When one member of the family has a cold, the others are very likely to have one within a few days

What makes a person susceptible to a cold? Probably his lowered resistance is a chief factor Allergic disorders of the nose and throat also make a person more susceptible to colds and other virus infections. Chilling of the body does seem to play a part, particularly in those whose resistance is already weak Lack of sleep may be another factor

The cold virus may be carried by any person. However children under six years of age seem readily to pass the infection from one to another, and soon all the family is involved. Colds are always more serious in younger children

**Symptoms:** Congestion of the nasal passages is usually the

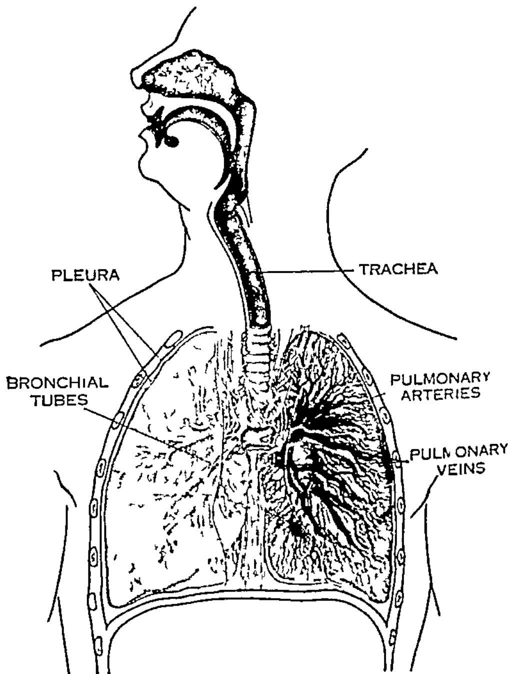
first sign of a cold The patient may have **frequent sneezing** and a severe, throbbing **headache** There may be a thin, watery discharge from the nose, requiring the use of many handkerchiefs. The eyes may be red and irritated Usually there is some rise in temperature, preceded by chilly feelings Next day the patient may complain of a **sore throat** and have some difficulty in swallowing Hoarseness, or **laryngitis,** indicates that the infection has reached the vocal cords, and the patient may now have to talk in whispers. Later there may be a deep chest cough, due to **bronchitis** This is a much more serious complication

**Treatment** Bed rest is still the best treatment for any severe cold A hot bath may help to relieve much of the congestion in the chest and nasal membranes Nose drops and specially medicated tablets will also help clear the nasal congestion and make the patient feel better **Hot packs** or fomentations are excellent for treating chest and head colds These packs should be applied to the head, neck, chest, back, and feet Follow the method outlined on page 96 **Steam inhalations** will help to relieve the congestion of the nasal tissues For details of this treatment see page 91 Call your doctor if the condition does not clear up readily **Pneumonia** and other serious complications must be guarded against.

### *Influenza*

Influenza also known as grippe and "flu,' is a highly contagious disease caused by several different strains of virus that somehow seem to change from one year to another At times they are extremely virulent in their effects on the human body, while at other times they are not. The great influenza epidemic following World War I probably swept off four times as many people as were killed during those frightful years of war In India alone, more than 5,000,000 deaths were reported but the actual number must have been far greater People of all ages were stricken, and of those who died more than half were under 40 years of age Men who seemed in the prime of life would come down with chills and fever and be dead in a few hours, probably because of pneumonia, meningitis, or encephalitis that seemed to accompany that most severe of all influenza epidemics.

Influenza always strikes suddenly It usually begins with **chills, fever, headache,** and severe **muscular pains** in the back and ex




THE LUNGS

Left shows surface of lung with bronchial tubes. Right shows pulmonary arteries carrying blood from heart to lungs for fresh oxygen. Bright red blood returns to left atrium via pulmonary veins, and is then pumped to all parts of the body

tremities The victim feels weak and is thoroughly miserable. The virus is probably spread through the community by means of coughing and sneezing Inflammation in the nose and throat may spread down the windpipe to the lungs, causing a **sore throat, cough,** running of the eyes and nose. Soreness may develop in the soft palate, and the back of the throat may be red owing to the presence of bacterial infection.

In milder cases the temperature rises to 102° F and lasts two or three days In more severe cases it may go up to 104° F and continue four or five days, followed by **weakness, sweating,** and **fatigue,** which may last for several weeks This may be followed by a deep chest cough due to irritation of the windpipes. Serious complications include pneumonia, pleurisy, and empyema or pus in the pleural cavity In young children the disease may start with a convulsion, the temperature rapidly going up to perhaps 106° F The patient feels thoroughly miserable and worn-out In older people with heart disease, the outlook is always serious. Severe and prolonged *depression* sometimes follows an attack of influenza, possibly because of the effect of the virus on the brain and nervous system *Ear infections* and sinusitis are frequent and may continue to give trouble long after the influenza itself has disappeared.

**Treatment** Keep the patient in bed and insist that he stay there until he is well again Give plenty of fluids by mouth, particularly during the fever An ice bag or cold cloth to the forehead may help to relieve a severe headache When there is a troublesome cough, **medicated steam inhalation,** as suggested on page 91, may be helpful A **heating compress,** as described on page 95, will help to relieve a sore throat Aspirin or some similar medicine will help to bring down the fever, the usual dose for an adult being one tablet every two or three hours Patients who are very ill should always be under the care of a physician, if there is any question of pneumonia severe bronchitis, or infections of the throat or ears

**Prevention** Although influenza is more common during the colder months, it may strike at any time Influenza vaccines are now available for protection against certain strains of the virus, but they must be given *before* an epidemic strikes. Most important of all is to build up a good resistance against infection by following a sensible programme of living One should keep the body in good condition,

choosing a well balanced diet, and avoiding an excess of sugar and sweets Train yourself to stand sudden changes in temperature. Take frequent baths and cold showers, followed by a vigorous rub-down with a coarse towel This will bring a healthy glow to the skin, and at the same time tone up the whole body and increase your resistance to all types of infectious disease

*Acute Bronchitis*

Bronchitis is a distressing and often serious type of inflammation affecting the windpipes, or bronchial tubes, within the chest. In most cases it seems to follow some infection higher up in the nose and throat. The common cold is probably the most frequent cause of *acute* bronchitis.

In most cases of bronchitis the larynx, trachea, and bronchial tubes are acutely inflamed The tissues are swollen because of irritation, large quantities of mucus are secreted and poured into the windpipes to protect the inflamed mucous membranes. Unless this thick, sticky material is removed, it may seal off several of the windpipes, causing **atelectasis** and even **pneumonia.**

During the acute stage of bronchitis there is usually a high fever and perhaps some **difficulty in breathing** Almost constantly there is also a deep **chest cough.** There may also be considerable **hoarseness,** and some **pain** in the chest. Difficulty in breathing continues until the inflammation has died down, and the thick secretions have been removed In a small child the inflammation may be due to a **foreign body,** such as a groundnut accidentally inhaled into one of the bronchial tubes. Younger children sometimes develop **croup,** a serious complication in which the larynx and vocal cords are inflamed and swollen, so that breathing is extremely difficult. Emergency treatment for croup is discussed on page 92

**Treatment** Moist steam inhalations, as suggested on page 91, are beneficial in treating severe bronchitis This treatment should be continued day and night during the more severe stages of the attack Fomentations, or **hot packs** to the chest, as described on page 96, will also help to relieve the cough Penicillin or some other suitable antibiotic medicine should be given daily until the condition is brought under control If there is extreme difficulty in breathing, it may be necessary for the doctor to perform a tracheotomy, so that the patient will have an airway through which to breathe

If the bronchitis does not clear up readily, the trouble may be due to some focus of infection, such as enlarged tonsils or chronic sinusitis. Tobacco smoke is a frequent cause of trouble. So are dust, fumes, and other chemical irritants Some suitable cough medicine, such as those suggested in the appendix, are very useful in helping to control a bad chest cough

### *Chronic Bronchitis*

In **chronic bronchitis** the disease is of long duration. This condition may arise from **sinusitis**, or from a chronic **nasal drip**, or perhaps **infected tonsils** and adenoids. It is more serious than the acute type, in that permanent changes may have occurred in the lungs, such as pulmonary **fibrosis**, **emphysema**, and other serious complications.

Normally the lungs are very elastic and flexible It is their function to expand and contract within the chest as we breathe in and out. Any chronic inflammation of the lungs, such as fibrosis or scarring, tends to interfere with the normal movements of the lungs so that the air cannot be inhaled and exhaled freely In asthmatic patients and those suffering from tuberculosis or congestive heart failure, the situation becomes even worse Severe coughing spells may then produce flecks of blood as well as copious amounts of sputum filled with pus and bacteria. This may lead to bronchopneumonia, a more serious condition

**Treatment** Any smoker with chronic bronchitis should **stop smoking** and remain in a smoke-free atmosphere as much as possible. Some suitable cough medicine is always advisable, for it is important for the lungs and bronchial tubes to rest as much as possible If the sinuses are infected, they should be adequately treated The tonsils should be removed if they are large or badly diseased It is well to have a **chest X ray** to rule out the presence of tuberculosis or some other serious condition such as cancer Digitalis may be needed if there is any tendency to heart failure This will also increase the circulation and relieve the pressure on the vessels leading to the lungs.

Those who suffer from chronic bronchitis because they live or work in dusty atmospheres should perhaps move to a less dusty area or take up other work Such patients should avoid heavy exercise They should follow occupations that do not require heavy breath

ing As far as possible, they should **avoid cold draughts**, for these always bring on a paroxysm of coughing Penicillin and other antibiotic drugs are often of value in treating the serious side reactions of chronic bronchitis. The aerosol method of inhaling the medicine is helpful in treating this condition The patient should follow a good, **well balanced diet** and take extra **vitamins** to aid in the healing of the inflamed tissues.

### *Bronchiectasis*

Bronchiectasis is a serious disorder in which the walls of the smaller windpipes become stretched and weakened, owing to some chronic disease of the lungs and respiratory organs. It usually begins with a **cough** which becomes progressively worse as time goes by This coughing is noticed particularly when the individual changes his position, such as on rising after lying down. He may then have to cough up a considerable amount of sputum.

In this condition large amounts of fluid seem to collect down in the bronchial tubes leading to the lower lobes of the lungs. The lining of these bronchial tubes may then become ulcerated, resulting in small hæmorrhages. The patient usually complains of **shortness of breath** *when he tries to work Chest colds are common, and there* may be **fever, weakness, loss of weight,** and **fatigue.** Special X ray studies may be needed to confirm the diagnosis. In a few cases it may be necessary to pass a long tube, or ***bronchoscope***, down into the chest for further study

Tuberculosis, chronic bronchitis, and fungus infections of the lungs are sometimes associated with bronchiectasis. Tumours and foreign bodies in the lungs might also be suspected.

**Treatment**· Many cases of far advanced bronchiectasis are now helped through surgery If the diseased area can be completely removed, the patient may be cured. Other cases not amenable to surgery may respond fairly well to prolonged medical treatment. Because bronchiectasis often seems to be associated with infected sinuses bad teeth, and enlarged tonsils and adenoids, all of these should be corrected. Penicillin and other antibiotic medicines are often of value in controlling the infection Many doctors use the aerosol method, in which penicillin and streptomycin are carried into the lungs by gentle air pressure

Inflamed bronchial tubes can often be relieved by the use of **adrenalin, Isoprenaline,** or some similar bronchodilating substance. Potassium iodide solution, five to ten drops in water, taken three times a day by mouth after meals, will help to liquefy thick secretions. **Postural drainage** will also help to raise the secretions The patient lies across his bed with his head and chest hanging down toward the floor two or three times a day, doing this for ten minutes at a time This helps to remove the unwanted secretions from the lungs.

A patient suffering from bronchiectasis must avoid colds and other infections for these could aggravate the condition It is wise to continue on some mild antibiotic medicine to guard against respiratory infections As in all other chest conditions, he *should not smoke*

## *Emphysema*

Emphysema means an overdistension of the alveoli, or small air sacs in the lung, and also of the small bronchioles, or tubes, that carry air to the lung These greatly distended air sacs often show evidence of chronic infection, as well as *fibrosis,* or scarring, due to inflammation

In emphysema the normal elastic tissue of the lungs has been replaced by scar tissue to some extent, so that in many cases the thin walls between these tiny air sacs have ruptured, and the walls of the bronchioles are stretched thin This reduces the ability of the lung to exchange oxygen and carbon dioxide and increases the load upon the heart The lungs and chest slowly increase in size, breathing is more difficult and the *vital capacity* of the lungs is reduced

This means that blood moving through the lungs no longer becomes saturated with essential oxygen, nor can it give up its unwanted carbon dioxide The right side of the heart becomes enlarged or hypertrophied owing to extra work in pumping blood through narrowed channels within the lungs, and also because of less oxygen in the blood stream

Patients with emphysema often experience **wheezing** and frequent **coughing** spells With some this is due to exposure to a dusty environment in their work over a period of years. Because the patient s vital capacity is reduced he gets **short of breath** even with

mild exertion, and in more severe states may experience periods of cyanosis and difficulty in getting a breath while lying down The coughing is very troublesome and may come on even after talking or any exertion

Because of the difficulty in breathing, the accessory or extra muscles of respiration are brought into action, for example, the chest lifts with each breath *Wheezing adds to the difficulty in breathing,* and respiratory infections, such as pneumonia, are very common.

Fortunately not all of the lung tissues are damaged The normal areas of the lung are still able to oxygenate the blood as long *as the patient does not have a cold or attempt to do too much.*

Emphysema is likely to develop in any person who suffers from asthma or any prolonged respiratory condition. Chronic infections of the chest, nose, throat, and sinuses should always be treated vigorously until they have cleared up Penicillin and other antibiotic medicines are of real value in such conditions. Many doctors also use nebulizers and aerosols to carry medications down into the lungs where they can do the most good Such medications as epinephrine, adrenalin, Isoprenaline, and potassium iodide are valuable in helping to expel secretions from the lungs and in controlling the severe bronchial cough Aminophylline is also useful and can be taken either in the form of pills or suppositories, or by injection. Some good cough medicine, such as suggested in the appendix, *will help* to control the cough Patients with emphysema should *avoid dusty* trades and *should not smoke* Any chronic heart condition should be treated as suggested on page 253

### *Pneumonia*

Pneumonia was once one of the most dreaded diseases known to man It is no longer so Modern antibiotic medicines usually bring the pneumonia under control, provided the patient's general condition is satisfactory and treatment is begun early enough. But pneumonia is still a serious disease. Germs causing pneumonia are of various types such as streptococcus, staphylococcus, and pneumococcus varieties. Certain viruses are also responsible at times

Most cases of pneumonia begin with a cold in the head or throat Often the patient feels a shaking chill, with sharp pains in the chest. This may be followed by a cough with pinkish sputum, later becom

ing brownish There is usually a fever and headache Rusty coloured sputum often indicates a more severe degree of pneumonia In young children there may be *delirium* and **convulsions** Most patients with pneumonia feel very ill and sweat profusely The temperature may rise to 105° F and the pulse may reach 150 beats per minute. Coughing is often severe with an abundance of sputum, and there may be cold sores around the lips and on the face.

**Treatment** Keep the patient in bed and give him plenty of fluids and juices If necessary, oxygen should be administered In most cases of pneumonia, penicillin or some other useful antibiotic used in sufficient doses will bring the disease under control and enable the body to build up its normal defences. Hot packs or fomentations, as suggested on page 96 are excellent in the treatment of pneumonia Be sure to keep the patient in bed for several days after his temperature has returned to normal Guard against any relapse, for pneumonia is always a serious disease.

## *Asthma*

Asthma is a distressing condition which usually comes on periodically and is more likely to occur at certain times of the year During severe attacks the patient has great difficulty in breathing Asthma is an **allergic condition,** an abnormal response of the body to some substance such as pollen, mould, animal fur, various chemicals fumes, odours, as well as certain foods or drugs Certain germs in the nose and throat may also cause asthmatic attacks These attacks are more frequent when the patient is tired or under severe emotional strain Even changes in the weather may sometimes bring on an attack.

Many patients with asthma also suffer from **emphysema,** a condition discussed on page 295 During a severe attack some of the smaller windpipes become plugged with thick, sticky mucus The patient can breathe in easier than he can breathe out This is what causes **wheezing** As a result, the air sacs become greatly distended and some of their walls may rupture. In a very severe attack, there may also be some bleeding into the air sacs of the lungs

Asthma may develop gradually during an attack of bronchitis or it may begin suddenly the moment a person is exposed to some offending substance Most attacks begin suddenly The patient first

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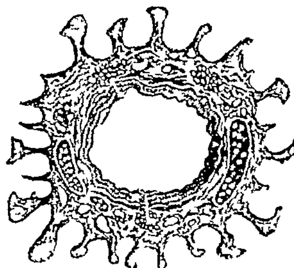
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## *Asthma*

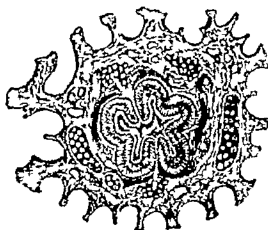
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Normal bronchial tube, wide open for easy breathing.



Bronchial tube greatly constricted owing to spasm and thick secretions.

feels a sense of tightness in the chest. This tightness may subside in an hour or two, or it may continue for hours or even days at a time. At the end of the attack the patient may suddenly cough up the thick mucus and the air passages are cleared

**Family History** In many cases there is a family history of allergy, the parents or other members having hay fever, giant hives, asthma, or some other allergic condition. It is always advisable to have an X ray of the chest to rule out any other serious condition, such as a tumour in the lung or an aortic aneurysm.

Asthma beginning in infancy is usually due to foods. If it comes on during late childhood and early adult years, it is most

likely due to pollen, dust, or chemicals After 45 years of age, asthma is more often due to an infection. Patients suffering from heart failure sometimes have asthma like attacks, but this is not true bronchial asthma The treatment for heart failure is discussed on page 256

**Treatment** If a definite cause for the asthma can be found, it should by all means be eliminated if possible Infections of the nose, throat, and tonsils should be given appropriate treatment. During a severe attack of asthma, Epinephrine or **adrenaline-in-oil** can be given to relieve the severe wheezing Epinephrine can also be used in a **nebulizer** **Aminophylline** is also useful and can be given by vein, but only under the direction of a physician. **Ephedrine,** 25 or 30 mg tablets may be given every four hours during a severe attack, but some suitable sedative should also be given to reduce anxiety and irritability in the heart. **Isoprenaline** is of real value to many patients

One should be careful not to use medicines too freely, especially those that depress the cough, for it is important to raise the thick mucus from the chest Elixirs of **Terpene Hydrate** with codeine, such as Codinol, or certain other cough syrups are often helpful The dose is one teaspoonful every four hours. During prolonged attacks **potassium iodide** or **ammonium chloride** are helpful Steam inhalations, as shown on page 91, will bring relief, especially when tincture of benzoin is added

In severe prolonged attacks of asthma, **oxygen** may also be necessary A positive pressure machine, if available, might be tried, but this should be done only under the direction of a physician The more severe asthmatic cases are best treated in hospital **Prednisolone** and other steroid preparations are sometimes valuable, particularly during severe intractable asthma. However, these hormone preparations, although effective, must be used with caution and only in more severe cases.

Antibiotic medicines, such as **penicillin,** are of value in treating infections which may bring on an attack of asthma in people who are prone to this condition. Simple treatments, such as **hot packs** outlined on page 96, will often help to clear up chest conditions that bring on an attack.

It is important for the patient to build up his general health. He should choose a balanced diet, and avoid emotional stress and

unnecessary fatigue. Asthmatic patients **should not smoke,** nor should they come into contact with other irritants such as chemicals, paint, or dust Asthma itself is rarely fatal unless some serious heart condition is also present. However, the anxiety and fear of suffocating will only aggravate an attack

Asthma patients must **keep calm,** for **excitement** only increases the difficulty *in breathing* Aerosol *inhalations* are often of value between attacks, particularly in those who are frequently troubled with asthma

Asthma patients should avoid colds and undue exposure. Some children outgrow asthma, but all asthma patients, whether children or adults, should be under the care of a qualified physician

### *Tuberculosis*

Tuberculosis (TB) is one of the most serious diseases known to man. *For many centuries it has silently carried on its dreadful work* Millions of people have spent their days in misery because of this slow but sure killer Even today, more people die from tuberculosis than from any other *infectious* disease.

No one knows how many people now living have tuberculosis. In fact, its dangerous germs may be at work within your own lungs right now and yet you know nothing about it. This could also be true of your friends and loved ones Almost everyone has had a touch of tuberculosis at some time The worst thing about the disease is that it attacks people in early adult life during their most productive years

**Causes** The villain that causes tuberculosis is a tiny, rod shaped germ so small that thousands of them could perch on the head of a pin. These tough little germs are protected by an outer layer of wax which prevents the normal defences of the body from making any headway against them

Tuberculosis may attack any part of the body, but it is most frequently found in the lungs Its germs can live for months in any cool, dark place, especially if there is a little moisture present. What is even worse, they can withstand drying for a time But they are quickly killed by sunlight and heat.

Tuberculosis germs are usually spread about by **coughing** and **sneezing** They can ride on particles of dust or water droplets *floating* in the air One cough from a tuberculous patient can spread many



Wisdom dictates that at the slightest suspicion of tuberculosis we have a chest X ray

thousands of germs into the air, so that other persons inhaling them may become infected with this dread disease. Mouth breathing and kissing are also responsible for spreading tuberculosis.

Once the germs have found their way into the lungs a fierce battle begins The body puts up a vigorous defence White blood cells quickly surround the germs, swallowing them as soon as possible But because of that waxy coat, many of the germs continue to live. Larger white cells then move in, building a wall of resistance against the invaders. This is known as a *tubercle* or tiny lump It was this that gave the disease its name

Unfortunately, within the tubercle the germs may live for months or years Or the lump may disappear, leaving a hole or cavity Large masses of scar tissue may form around these areas This hinders the flow of blood and interferes with the normal movements of the lungs Calcium or lime may be deposited in these tissues and also in the neighbouring lymph nodes, so that they are no longer serviceable.



Bedrest is the most important part of the treatment for tuberculosis.

How long can such a patient survive? That depends on his general condition of health If his resistance is high and there are not too many invading germs, he may make a quick recovery But if his resistance is down because of improper food, overwork, or bad habits of living, he may lose the battle. This is more apt to be true if he is living amid unhygienic conditions and is frequently exposed to the disease Contaminated food and water may also be responsible for the spread of tuberculosis People who drink unpasteurized milk certainly run a risk, for tuberculosis germs may be present. Once these germs have found a foothold within the body, they are hard to dislodge. One must therefore *prevent* the disease if at all possible

**Danger Signals** Undue tiredness and fatigue, or a loss of pep

in which a person becomes tired out on little or no exertion— these may indicate the presence of tuberculosis in some part of the body Any sudden **progressive weight loss** should also make one suspicious, especially if he has a **chronic cough,** or happens to be **spitting up blood** occasionally These are real danger signals. **Chest pains** should also make one suspicious, particularly if he also suffers from **night sweats,** an afternoon **fever,** or **loss of appetite**

How is the diagnosis made? One simple method is the **tuberculin test** The doctor injects a small amount of liquid into the skin. If it becomes unduly red and inflamed it may indicate the presence of tuberculosis A **chest X ray** is most important, not only in detecting tuberculosis, but in searching for some other serious conditions such as heart disease or cancer of the lungs Everyone should have a chest X ray every year

**Treatment** The most important treatment is **rest** This means complete rest of both mind and body Any type of stress will tend to delay the healing The invading germs may have torn holes in the lungs, and nature must now find some way of repairing these holes In a case of far advanced tuberculosis, it is sometimes wiser for the patient to be treated in hospital If he remains at home, he should definitely have a room of his own. It should be well lighted and ventilated, as suggested on page 77

**Fresh air** is always important in the treatment of tuberculosis. In milder climates the patient may do well on a sleeping porch, preferably away from the smoke and dust of a large city He should be given a balanced diet, as shown on colour plate facing page 50 Extra vitamins, particularly vitamin C, should also be given. Fresh fruits and vegetables should be included in his diet as often as possible

**Medicines** Various medicines are now available, the most frequently used being Isoniazid (INH) and streptomycin Both of these are effective and can be used together Para-aminosalicylic acid (PAS) is also valuable and can be used in combination with the other drugs The actual dosage of these medicines must be outlined by your own physician.

**Surgery** Severely damaged lung tissues should be removed by surgery if at all possible Unfortunately not all patients can stand the operation, but healing is quicker and more complete if such tissues can be removed. In many advanced cases a combination of

medicines and surgery may be the best mode of therapy As in other lung conditions, the patient **should not smoke**

### *Pleurisy*

Pleurisy is a painful inflammation of the pleura, the inner lining of the chest wall It is usually associated with some conditions of the lungs, such as pneumonia, tuberculosis, but most commonly follows a common cold or bronchitis In a few cases it may also occur in rheumatic fever, uræmia, and other conditions

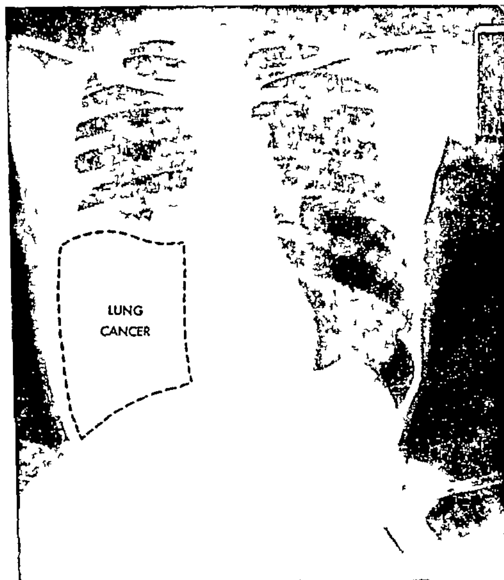
Pleurisy usually begins suddenly with a sharp, stabbing pain in the chest. Deep breathing or coughing increases the pain. It may be felt in any part of the chest wall or over the diaphragm.

**Treatment** Keep the patient in bed until the temperature has been normal for several days Give hot packs or fomentations once or twice daily as suggested on page 96 Apply some kind of binder around the chest during the acute stage to relieve the pain Give one or two aspirin tablets every two to three hours to relieve severe pain and to keep the patient more comfortable Any underlying disease, such as pneumonia, must also be adequately treated, the best treatment being penicillin or some other antibiotic.

### *Cancer of the Lung*

Cancer of the lung is becoming very widespread today In fact, it is increasing more rapidly than any other type of cancer Primary cancer of the lung also known as bronchogenic carcinoma, begins *within* the lung or one of the bronchial tubes More men die from cancer of the lung today than from any other form of cancer Unfortunately, by the time the patient is aware of his true condition, the disease may have already progressed far beyond the earlier stages This is what makes cancer of the lung so dangerous

This disease in almost every case develops in **heavy smokers** At the present rate *one heavy cigarette smoker out of every ten* will die of lung cancer Even those who smoke only a few cigarettes a day run some risk of developing this disease. But in men who smoke two packs a day, the rate is extremely high. Some substance, perhaps the **tar** that is always present in tobacco leaves, seems to irritate the lining of the bronchial tubes. This substance has long been known to produce cancer when applied to the backs of mice and other experimental animals




The outlined area of this X ray shows extensive lung cancer This deadly disease is most common among smokers.

Naturally a question arises What about **filters**? Will these protect a person from cancer of the lung? The answer is No It is doubtful that any cigarette filter will ever be entirely safe. The most sensible thing is to avoid the use of tobacco in any form.

The earliest and most frequent symptom of lung cancer is a chronic cough Even the so-called 'cigarette cough' may be a

danger signal Any cough lasting more than three weeks should be thoroughly investigated. Another symptom is **wheezing** The patient may notice this first when he is lying quietly in bed just before dropping off to sleep Later there may be **chest pains**, followed by **night sweats** as the tumour mass cuts off the normal drainage from the lungs. Still another symptom is **loss of weight**, perhaps accompanied by fine streaks of blood being coughed up from the bronchial tubes. Some cases of so-called "virus pneumonia" have later been shown to be due to cancer of the lung Certainly *all smokers should have a chest X ray* at least twice each year

**Treatment** Once the diagnosis of lung cancer is made, **surgery** is probably the only effective method of treatment The chest is opened very wide so that the surgeon can examine all areas If cancer is found in only one lobe of the lung, it may be possible to remove this portion completely We have no other safe way of treating this disease at present *Prevention* is always preferable in conditions like this Remember, those who do not smoke are far less likely to develop cancer of the lungs.

What about **smog** and industrial fumes? Contaminated atmosphere possibly does play some part but it is a striking fact that almost all lung cancer victims are, or have been, heavy cigarette smokers. Non smokers who live in large cities polluted by smog do not seem to develop the disease One must therefore conclude there is a strong causal relationship between smoking and primary cancer of the lung

Smokers who use pipes and cigars are also more likely to develop cancer not of the lungs perhaps but in the lip, mouth, or palate Certainly any lesion in the mouth should be carefully investigated, for any sore on the face or mouth lasting more than three weeks might be due to cancer

How can one **quit** the smoking habit? Turn to the next chapter for advice.

# HOW TO STOP SMOKING

Many thousands of people today are heavy smokers, not by choice, but because they have found no way of escape They are caught in the grip of a habit developed during their teen age years when so many young people think it is smart" to smoke

The strange thing is that most of these people never wanted to smoke in the first place They were only doing what they thought everyone else was doing at the time Yet here is another odd thing Smoking is not a normal habit A person has to *learn* to smoke.

*Why Stop?*

Why should we worry about smoking? For several reasons Smoking is not merely an expensive luxury, it plays a definite part in lowering a person s resistance to disease. Heavy smokers die from five to ten years earlier than non smokers In most cases the trouble is due to some condition of the heart or blood vessels. Another important factor is cancer of the lung This is more fully discussed on page 304 Yes a person can save money by not smoking, but far more consequential, he saves health and vitality

Perhaps you have never learned to smoke Good! But many of your friends are not so fortunate For their sakes it is well for you to understand something about this problem Every cigarette your friends smoke leaves them just a little weaker and less able to carry on Then why don t they stop? Because they are addicted to **nicotine,** a powerful drug that is present in tobacco leaves Some people seem to have little difficulty in giving up the habit, but most people have a real struggle The majority continue to smoke because they get a temporary lift from the tobacco However, this is always followed by a let down, which then calls for another smoke

Strange that a few brown leaves rolled up in a small wrapper or packed down in the bowl of a pipe should have such a profound



*Are you a slave of the cigarette? You need not be if you do not want to be.*

effect on a person's life. Is it a temporary way of escape from the strain of living amid constant tension? It is true that many heavy smokers are neurotics. Smoking provides a quick way out of a dilemma. Drugs present in tobacco leaves give a temporary lift, so they keep right on smoking, lighting one cigarette from the butt of another. Meanwhile the "weed" is slowly wrecking their health and shortening their lives.

*Non-Smokers Have the Advantages*

What happens when a person stops smoking? His digestion improves, his blood pressure returns to normal, the quality of the blood itself improves, and his heart works more efficiently. But this is not all, the person who gives up smoking does something really

worthwhile for his future health He has less chances of developing ulcers of the stomach, and he is less susceptible to heart disease during the productive years of his life He will also have less trouble with his nose and throat

Ever hear of a 'smoker's cough'? Of course you have Some of your friends have chronic, hacking bronchitis, and maybe you do too! Inflammation of the throat is only too common in all heavy smokers That stubborn cough is bad enough But far more serious, the chronic irritation may also lead to **cancer**

True, some doctors believe other factors are also responsible. That may be The fact remains, however that the non-smoker has far less trouble with his throat and lungs and also with his heart and circulation, regardless of these other factors.' Therefore, the wise person will avoid using a weed that seems to destroy his body

### *Poisons in Tobacco*

Actually there are **eighteen different poisons** in a cigarette. Some of these attack the delicate membranes of the windpipes Others enter the blood stream and interfere with its normal circulation throughout the body But the two most important are the **tar,** a carcinogenic or cancer producing substance, and **nicotine**

These substances are transferred to the bronchial tubes and the lungs through the smoke, and then deposited on the mucous membranes lining these tubes, where they cause much local irritation In fact, these mucous membranes may become four or five times thicker in the heavy smoker than in a non-smoker This increases the resistance to the passage of air into the lungs and makes it that much harder for him to breathe

Extracts of these substances are used by scientists to produce cancer in mice and other experimental animals. Why take such poisons into your own system and run the risk of developing cancer of the lung?

Nicotine is one of the most potent substances known to man As a poison it is second only to the cyanides in its destructive effect on the human body Fortunately much of the nicotine is destroyed when the tobacco is burned, but enough of it gets into the smoker's lungs to give him a "lift. This is temporary, however Soon his artificially stimulated nerves call for another smoke and so on and on This is how nicotine creates addiction to tobacco

*How to Stop*

How can a person actually stop smoking? Naturally the first thing to do is to S T O P Whether you decide to stop for just an hour at a time during the first day, and two hours the next and three hours the next day, or whether you plan to stop altogether is a personal matter which you alone must decide Almost every smoker who genuinely wishes to stop will have a real struggle to face What should he do? Here are a few steps he can take

1 **Stay away from other smokers** as much as possible, particularly during the next few weeks This will reduce temptation and strengthen your resolve not to start again

2 **Become a vigorous campaigner** against the use of tobacco in any form This may bore some of your friends for a while, but in the end you may be able to help them too And certainly in the process you bolster your own resolve

3 **Take two hot baths** every day and follow them with stimulating cold showers This will help you physically and strengthen your will to succeed

4 **Take plenty of exercise** including deep breathing and long walks in the open air several times each day This will clean out the lungs and improve your sense of well being

5 **Watch your diet.** Be sure to take large quantities of fresh fruits and vegetables These are an excellent antidote against the poisons of tobacco In fact, if you were to eat little except fruit and vegetables for the next few weeks you would soon lose your desire to smoke. If necessary, take small meals more frequently to stabilize your blood sugar This will also help to calm your nerves during this time of stress.

6 **Don't go hungry for long** Eat regularly and do not attempt to lose weight while you are trying to break the tobacco habit. You may gain a few pounds, but don t worry about this just now You can lose it later if need be

7 **Avoid highly seasoned foods,** alcohol, tea and coffee These have probably encouraged your craving for tobacco They have spoiled your appetite for normal foods that build the body Omit such things as pepper, mustard, spices, and all hot condiments from your diet. For the present you should even be careful about taking excessive amounts of salt. Drink at least ten glasses of water

a day the first week Taking a drink helps to reduce the craving for tobacco If you will follow these instructions you will soon be surprised at the new flavours you are discovering in your foods.

8 **Get rid of all your cigarettes** and every vestige of tobacco you possess It is not safe to keep any smoking materials handy just now The temptation to start using the stuff may prove too great

9 **Commit yourself to God** every day and every hour, asking Divine help whenever you feel the craving to smoke Power from above is always available to those in need

10 **Do not falter in your resolve** to conquer this habit, for it is well worth all the effort you will be forced to make

Once you have solved this problem you will be surprised at how much better you feel Your heart will beat quietly, your nerves will be calm, and your pulse strong and steady Your breath will be sweet and clean, your muscles relaxed, and your mind will be in control of itself This will give you new moral and intellectual power, for you are no longer enslaved by a filthy habit From now on you will enjoy better health and under the blessing of God, you will know true satisfaction and happiness.

TUMOUR OR SWELLING This is always a danger sign. Any swelling of the tissues anywhere in the body should always be looked on with suspicion Even a goitre, which is an enlargement of the thyroid gland in the front of the neck, may become malignant at some time or other If there is any doubt, one should see a good surgeon

LOSS OF WEIGHT Any loss of weight can be serious This should always be thoroughly investigated, particularly in older people Sometimes the loss of weight occurs so slowly that it is hardly noticed There may be some good reason for this But whatever the cause, something should be done about it. A complete record of a person's weight should always be kept, preferably in your doctor's office.

CHANGE OF COLOUR This is another cause of concern It could be due to slowly developing anaemia, arising from something depressing the normal functions of the bone marrow Cancer will sometimes produce these changes. So will other serious types of illness. One should have a complete examination, as well as a blood count, urinalysis, and whatever X rays may be indicated

CHRONIC SORES Any sore that does not heal within two or three weeks could be due to cancer of the skin. Such sores may be found on the face, hands, arms, and other parts of the body There is no use putting ointment on the sore and hoping it will heal. If it is a cancer, it must be treated properly Surgery and X ray radiation are the best means at present available.

UNUSUAL BLEEDING OR DISCHARGE Certain discharges from the body are perfectly normal. They are necessary for the health of the whole system. But any unusual discharge or bleeding should be looked upon with strong suspicion. This could arise from cancer Such conditions should be given a most thorough investigation.

WARTS AND MOLES Moles and blemishes are exceedingly common Many people also have warts These are hard,

dry growths in the skin. They come and go without any obvious cause Usually they are perfectly harmless But any sudden change in the appearance of a wart or mole should be reported to your doctor at once. Such changes are sometimes due to the presence of cancer

PERSISTENT INDIGESTION Many people are troubled *with occasional bouts of indigestion.* These episodes arise from a disordered stomach, which is often irritated by improper foods Nervous problems are another common cause of gas and indigestion Such symptoms are often present all through life. But if a person suddenly notices he has indigestion more frequently, it is high time to see his doctor and have an X ray of his stomach and bowel Cancer may be lurking within

*DIFFICULT SWALLOWING.* Most of us have no difficulty in swallowing! In fact, if we did it might be better for our waistline! But when a person suddenly experiences difficulty in swallowing, it is time to do something about the condition The trouble may not be due to cancer But whatever the cause, it should be corrected

HOARSENESS Cancer of the larynx, or voice-box, is not very common But it does occur If a person suffers from hoarseness for more than a week or two, he should consult a specialist in nose and throat diseases There may be a tumour on one of the vocal cords.

CHRONIC COUGH *Coughing is associated with many* different diseases A chronic cough might be due to cancer of the lung An X ray of the chest is always advisable For a further discussion on cancer of the lung, see page 304

CHANGES IN BOWEL HABITS Any sudden change in normal bowel habits should be carefully investigated An X ray of the lower bowel should be done and a complete proctoscopic study carried out. One should *never rest until* these organs have been thoroughly examined Such changes may be due to cancer Fortunately, this type of malignancy usually responds well to proper treatment, which generally includes surgery

CHAPTER 35

# DIGESTIVE DISORDERS

Every healthy person enjoys eating This is one of the pleasures of life. Mealtimes are generally happy social occasions. But they are important for other reasons as well How we choose and prepare our foods affects the way we live and the health we enjoy Suggestions on choosing foods and balancing the diet are more fully discussed in earlier chapters of this book. In this chapter we review the common digestive disorders and what to do about them

Digestion begins the moment food is introduced into the mouth. Within the mouth a certain chemical called **ptyalin** is added to the food from the saliva This begins to break down the starches into less complex forms so that eventually they become the simple sugars known as maltose, dextrose, and glucose Unfortunately, many people fail to make use of these valuable enzymes within the mouth Because of nervous tension they swallow their food without properly chewing it and then wonder why they suffer from indigestion The mere act of chewing would help to relieve their tensions and also aid in digesting the food

### *Bad Teeth and Halitosis*

Nothing is more objectionable than bad breath Unfortunately, most people who offend in this respect are completely unaware of their problem One common cause of trouble is **bad teeth** Dental decay at the roots of the teeth may result in abscesses in the gums with foul smelling pus giving an objectionable odour to the breath

Even small holes in the teeth may provide a place where germs can multiply and release foul odours These are very common in younger people. Badly fitting dentures that have not been properly cleansed are a common cause of trouble, especially in older folk **Bad tonsils** and infections of the adenoids and sinuses may also play a part in this Odours may also arise from inflammation in the stomach, and also from food materials that have not been completely digested

**Treatment** See a good dentist at once if you have any cavities in your teeth Your doctor will advise you concerning the condition of your gums, tonsils, adenoids, sinuses, and other parts that may be the source of offensive odours A wholesome, well balanced diet will go a long way toward preventing trouble All decayed teeth should be properly filled or extracted Such a decision should be left to a qualified dentist. To choose a simple, wholesome diet with plenty of fruit is one precaution all can take against offending other people with halitosis, or bad breath

*Difficulty in Swallowing*

Swallowing is a complicated process requiring the smooth working of a number of muscles in the throat, face, tongue, and palate. Any disease process in these areas may interfere with normal swallowing For instance, any congenital defect, such as a cleft palate or a narrowing of the œsophagus, may interfere with normal swallowing This is also true in some who suffer from a diverticulum of the œsophagus, or food pipe, leading to the stomach

Any tumour, such as an enlarged thyroid gland, or an aortic aneurysm, or even cancer, may interfere with normal swallowing Large food masses or foreign bodies, such as fragments of bone, sometimes become stuck in the œsophagus and have to be removed through a long tube known as the œsophagoscope, or else partially dissolved by some chemical such as papain so that the food mass can pass down into the stomach

Difficulty in swallowing sometimes follows certain diseases, such as polio, diphtheria, syphilis or various forms of poisoning alcoholism, and also hysteria and other mental disorders Elderly people suffering from a stroke may also have difficulty in swallowing Instead of liquids going down to the stomach, they may flow back through the nose. This is a most distressing situation, particularly if it continues over a long period of time. Spasm in the lower portion of the œsophagus may also be responsible for trouble in this respect If this continues over a long period, the œsophagus may become greatly dilated and the condition may have to be relieved by surgery

Another condition that may cause difficulty in swallowing is œsophagitis. This is an inflammation of the lower end of the œsophagus due to too much acid in the stomach It is often associated with

gastritis and *peptic ulcer*. Sometimes a portion of the stomach is located in the chest. This is known as **hiatus hernia,** or diaphragmatic hernia. Fullness of the stomach or pressure on the abdomen may cause part of the stomach to move up into the chest. In such cases there is often a feeling of distress, and there may also be bleeding at times.

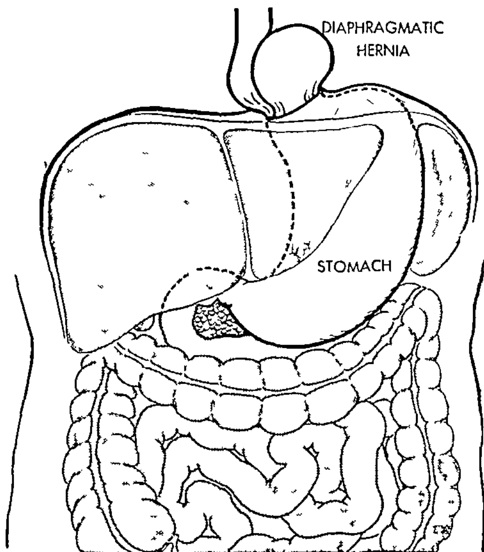
### *Indigestion or Dyspepsia*

People with indigestion complain of a number of different symptoms, such as nausea, heartburn, upper abdominal pain, and flatulence, or a sense of fullness, in the abdomen after eating food. These feelings of discomfort often come on after eating too rapidly or not chewing properly. The trouble is sometimes due to lack of teeth. Emotional upsets and severe mental strain are also common causes of gas and indigestion. Constipation may interfere with the normal flow through the gastrointestinal tract, and often causes gas and abdominal pain.

Certain foods, especially if they are **poorly cooked,** may cause trouble. Some people react unfavourably to beans, cabbage, onions, cucumbers, radishes, strawberries, and various sea foods. **Fried foods** often cause gas and abdominal discomfort. **Excessive smoking** is another cause of trouble.

Many nervous individuals rapidly gulp down their food and swallow excessive amounts of air as well. **Carbonated drinks** release a lot of carbon dioxide gas which may produce a sense of fullness in the stomach. This in turn can produce a sense of **smothering** and **palpitation,** leading folks to think they are having a heart attack. Gas within the intestines may be due to **fermentation** and actual decay of food within the intestines. In all such cases it is advisable to have a complete X-ray of the stomach and bowel to be sure nothing more serious is present.

**Treatment**. Begin by choosing a well balanced diet. Be sure the food is well prepared and thoroughly chewed. If at all possible, allow a full hour for a meal. Avoid all haste while eating. Meals should be served in a pleasant, relaxing environment, free from undue excitement and smoking. Constipation should be corrected by using enough bulk in the diet, and possibly by some suitable laxative such as milk of magnesia or a small quantity of cascara. *Belladonna products*, such as Belladenal, are of real value in relieving this condition.




**Drawing of a hiatus, or diaphragmatic, hernia. This condition may be caused by fullness of the stomach or pressure on the abdomen.**

In a few patients there may not be sufficient hydrochloric acid in the stomach This can only be determined by the use of a gastric analysis If no acid is found, the condition may be relieved by the use of hydrochloric acid in the form of tablets (Acidol Pepsin) given before each meal Simple antacids, such as Gelusil, can be given to relieve stomach distress, particularly if there is too much acid

### *Gastritis*

Gastritis is an inflammation of the lining of the stomach The patient usually *complains of pain, loss of appetite, nausea, vomiting,* headache, and dizziness The trouble may follow taking alcohol, spices, certain drugs, strong acids or caustic substances. It may some times follow measles, diphtheria, virus pneumonia, and enteric fever ***Prolonged nervous tension*** may also result in gastritis

In the more chronic forms there is a feeling of fullness in the abdomen, particularly after taking food The patient also complains of **heartburn, nausea** and **vomiting,** and occasionally hæmorrhage from the stomach. Prolonged illness often results in **loss of weight.** In a few cases a small ulcer may be present which is not seen on X ray However, the patient should always have an X ray made to help in diagnosis People with **pernicious anæmia** may suffer from atrophic gastritis due to loss of the "intrinsic' factor normally present in gastric juice Patients who have too much acid are likely to have ulcers Hence it is wise to have a gastric analysis

**Treatment** Avoid anything that irritates the stomach, particularly alcohol, nicotine, spices, condiments, aspirin like drugs, and harsh laxatives The diet should be bland, similar to that suggested for peptic ulcers. (See page 321 ) *Extra vitamins are recommended* especially $B_{12}$ if there is any suggestion of pernicious anæmia Patients who are bleeding from the stomach should be put to bed with an ice bag over the abdomen and kept quiet until the doctor comes In cases of massive bleeding with **black tarry stools,** take the patient to hospital for appropriate treatment including surgery, if this is indicated.

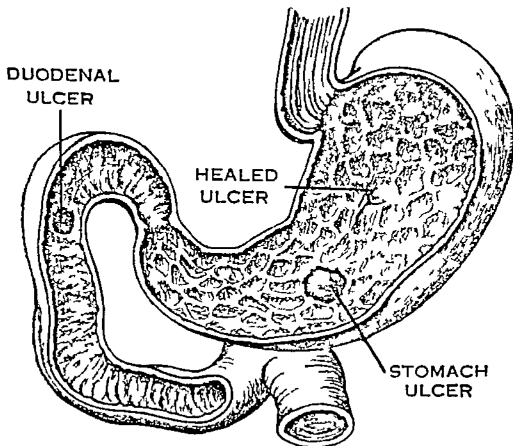
### *Peptic Ulcer*

Peptic ulcers are among the most common of all conditions affecting the human race today They occur far more frequently than many people believe. Even young children may suffer from ulcers In adults, ulcers of the stomach are more common in women, while ulcers of the duodenum, or first part of the bowel are more common in men

What is a peptic ulcer? *Actually it is an ulcerated* or eroded, area of the mucous membrane that lines all the digestive organs It occurs most frequently in the lower end of the stomach, first part of

the duodenum, or lower end of the œsophagus All factors involved are still not known But ulcers almost never occur in patients with low levels of hydrochloric acid in the stomach The stronger the acid, the greater the likelihood of an ulcer **Emotional tensions,** such as those brought on by family arguments, seems to play a large part in the development of ulcers

Usually there is only one ulcer, but occasionally several may be present in the same patient Most ulcers are small, probably less than half an inch across in the duodenum, and perhaps one inch across in the stomach. Ulcers in the duodenum are rarely malignant, but one ulcer in every ten occurring in the somach may be malignant.




Areas where stomach ulcers may occur Emotional tensions seem to play a large part in the development of ulcers.

The most outstanding symptom of an ulcer is pain. It is usually sharp and severe In a few cases there is also a steady aching or gnawing sensation in the upper abdomen The patient can always put his finger on the sore spot In duodenal ulcers the pain comes on when the patient is hungry, it may even be severe enough to awaken him at night In many cases the pain is *relieved by taking food*, but is made worse by taking alcohol, condiments, and coffee. Patients with stomach ulcers may feel worse after taking food Sometimes the ulcer may not be noticed for several weeks or months, only to flare up again under emotional strain or after taking alcohol

Another symptom often associated with an ulcer is heartburn, or inflammation of the œsophagus This is more fully discussed on page 315 16 Because of spasm the stomach cannot empty itself properly, so that the highly concentrated hydrochloric acid spills up into the œsophagus, perhaps even forming an ulcer there to aggravate the situation

**Diagnosis** A correct diagnosis is most important before beginning any treatment In addition to the history of pain, burning, gas and other symptoms, a **complete X ray** of both the upper and lower gastrointestinal tract should be made Usually the ulcer can be seen but in a few cases the X ray may fail to show any convincing evidence of the ulcer

The size of the ulcer is important, especially if it is in the stomach. *If the ulcer is very large, it may be necessary to remove* that portion of the stomach, particularly when there is any suspicion of cancer in or around the ulcerated area. In any case, the doctor will probably want to repeat the X ray in three or four weeks to see if there is any change in the size and shape of the ulcer *If it is getting* larger in spite of medical treatment it may be well to undergo surgery If, on the other hand, normal healing appears to be taking place, a further trial of medical treatment is wise

**Treatment** The most important thing is to **heal the ulcer** and prevent it from coming back This means a period of both **mental and physical rest** to allow the stomach to heal For large ulcers in the stomach, the patient should remain in bed for several weeks preferably in hospital If a repeat X ray fails to show normal healing within the stomach after such a period the trouble may be due to cancer and the suspected area should be removed

Large duodenal ulcers are also best treated in hospital during the acute stage, particularly if **bleeding** has occurred Following this bed rest at home for two or three weeks may bring the ulcer under control One must carefully guard against serious complications the worst being **perforation** of the ulcer, followed by severe hæmorrhage and shock

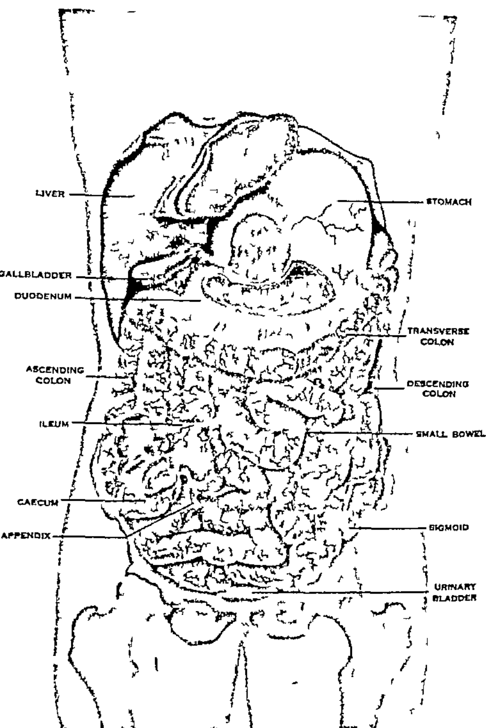
Diet is most important in the treatment of ulcers During the acute stage it may be necessary to take a **liquid diet** every one to two hours for a few days Milk is best for this purpose, for it provides both protein and calcium in adequate quantities to aid healing and support the whole system Medications given are usually belladonna products such as Belladenal and also Pro Banthine, both of which have a soothing, healing effect on the digestive system As the patient improves other foods, such as bland cereals, mashed potato, and simple desserts, should be added to the diet. Gradually he can return to a more complete diet, provided the pain remains under control

Patients not responding to good medical treatment are often advised to have **surgery** One is the pyloroplasty and vagotomy operation. This often relieves the spasm at the outlet of the stomach Another is the subtotal gastrectomy, which is done to eliminate the ulcerated area and remove the acid producing part of the stomach, thus preventing further erosion of the mucous membranes The vagus nerves are also severed to reduce irritability in the stomach and lessen the chance of acid being produced in other areas After this particular operation some patients are troubled with "dumping" syndrome in which weakness, dizziness, sweating nausea vomiting and palpitation may occur

Some ulcer patients, as well as those who have undergone surgery may be troubled with **vomiting of blood** and **tarry stools,** due to the presence of hæmorrhagic gastritis, referred to on page 318 Or perhaps the ulcer has eroded into a blood vessel causing serious hæmorrhage into the stomach or duodenum **Peritonitis** may also occur if the ulcer has eroded clear through allowing the gastric juices to spill out into the abdomen These are all serious complications that can only be adequately treated in hospital Patients with ulcers should always note the condition of the stools If they appear dark or black, the condition should be reported to the family physician at once

All ulcer patients, including those who have had surgery for this condition, should follow certain rules of life They **should not smoke.** Tobacco is an irritant and always aggravates the digestive organs. They **should not use tea, coffee,** or **alcohol** They should *avoid fried foods, roughage, chillies, spices,* and all hot seasonings For beverages, it is best to use milk, water, and fruit juices

Above all try to take sufficient rest, avoiding all nervous tension as far as possible. Cultivate an atmosphere of confidence and hope. Learn to live one day at a time Be tolerant in viewing the short comings of others, avoid all resentment. Learning to forgive others without their asking will not only promote healing in the ulcer but will also bring satisfaction and true peace of mind




Front view of abdominal organs, with part of liver lifted up and portions of stomach and cæcum cut away to show internal arrangement

CHAPTER 36

# LIVER, GALL-BLADDER, AND PANCREAS

The liver is the largest single glandular structure in the body It is located high up on the right side of the abdomen under the lower ribs and just under the diaphragm which divides the chest from the abdomen Your liver has many important functions to perform, for *it is the great chemical laboratory of your body* When one is healthy the liver works so smoothly that you never give it a second thought. But the liver can be affected by a number of serious disorders, such as virus infections, parasites disturbances of the circulation, stone formation in the bile ducts, injuries due to poisonous substances, and various kinds of tumours

The liver is rather simple in appearance, but it has many important functions to perform Most of the foods we eat are stored in the liver, after having been digested and absorbed from the gastro-intestinal tract A vast network of tiny blood vessels arise from all parts of the stomach, small bowel and spleen These numerous tributaries unite and become the portal vein, which in turn flows into the liver This large vein breaks up into numerous channels that pass between all the actively functioning cells of the liver By this means food materials from the digestive tract are able to reach the liver cells where they are chemically changed and stored These energy foods are stockpiled until needed by muscles bones, nerves, and other tissues

Certain vitamins are also stored in the liver cells, particularly those that have to do with the production of red blood cells in the bone marrow Here also protein materials from the digestive tract are recombined into the forms needed within the body Thus the blood stream brings what we might call the raw materials from the gastro intestinal tract and leaves them with the liver cells It then takes finished products from the liver and transports them to the heart to be carried to each organ and tissue

*Neutralizing Poisons*

The liver has another very important function, that of detoxifying or destroying many harmful poisons and even certain medicines that are taken into the body for other purposes When the liver is sick these numerous activities are impaired, and soon the whole body suffers All this endless activity means that the liver cells eventually become worn out and must be replaced In most people the breaking down and building up process continues without any apparent difficulty In fact, radio active studies have demonstrated that all the protein in the liver is changed every few weeks

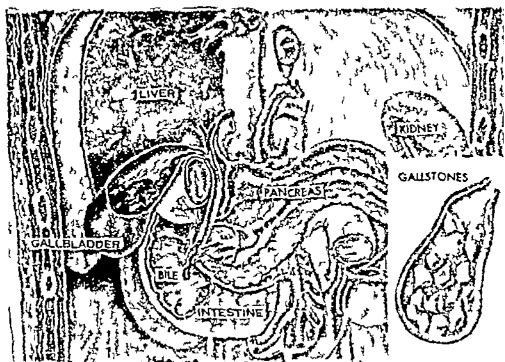
Not only does the liver store food materials, it also produces bile, a golden yellowish liquid that is needed for the absorption of fat from the intestine Bile is a natural laxative It actually prevents us from being poisoned by absorbing the by products of our own digestion Should the bile channels become blocked, a serious condition known as *jaundice* will develop Later we will speak of this more fully

Another important substance produced in the liver is *cholesterol*, part of which passes into the bile It may even form stones in the bile ducts and gall bladder under certain conditions Another substance is *prothrombin*, essential for the clotting of blood *Urea*, an important component of urine, is also produced within the liver The production of all these substances may be changed under certain disease conditions

If vitamin K is not present, or is interfered with through the action of certain anticoagulant medicines, such as *Bicoumarol*, the level of prothrombin in the blood will fall Under certain conditions vitamin K may not be absorbed too well from the intestine, so that there are insufficient quantities to meet the needs of the body In such a case frank bleeding may occur in various parts of the body *Bile salts* must also be present in the intestines to allow vitamin K to be absorbed. Hence, anything that hinders the normal flow of bile into the intestine will greatly affect the functions of the liver

*Liver Tests*

A number of different types of liver function tests are available to help doctors trace the causes of liver trouble. Each test has a dif




Drawing showing location of the liver gall bladder and pancreas Insert illustrates formation of gallstones.

ferent meaning and must be carefully interpreted Some tests measure the level within the blood stream of certain substances. The amount of change in the test related to liver function roughly approximates the amount of illness or injury Thus an injured liver will give an abnormal reading and help to guide in the treatment required These tests are also valuable in gauging the effect of treatment For instance, the *transaminase* test measures the level of a certain enzyme which has been liberated from injured cells This becomes a fairly reliable index as to the severity of an injury and can be used after heart attacks, as well as in obstructive jaundice and acute hepatitis.

## *Jaundice*

Jaundice is a disease marked by a yellow discoloration in the skin or in the whites of the eyes This is due to excessive amounts of bile in the blood stream. Jaundice may arise from a number of different causes Some types of jaundice arise from conditions outside the

liver Also in some cases the patient may have jaundice in a subclinical form That is, the bile pigment may be elevated but not sufficiently to actually discolour the skin

Normally there is a certain rate at which the red blood cells are broken down and destroyed in the body The average life of a red cell is about four months But certain disease conditions may cause an excessive breakdown of red cells and this increases the bile pigment in the blood Such a rapid breakdown of cells may be seen in hæmolytic anæmia, sickle-cell anæmia, pernicious anæmia, and jaundice of the newborn, as well as in malaria, pneumonia, yellow fever, and certain bacterial infections of the blood

*Obstructive jaundice* means that the bile is backing up into the blood stream because of some obstruction involving the larger bile ducts The normal liver produces about one pint of bile every twenty four hours This is transported to the gall bladder where it is concentrated and becomes green, or else passes directly to the small intestine where it acts as a lubricant Bile is also necessary for the absorption of fats and for its laxative effect in the large intestine.

Bile gives colour to the fæces When it is absent, the stools become very light, almost white in colour Anything that obstructs the flow of bile to the intestine will not only produce light-coloured stools but may also result in jaundice. The obstruction may be due to a stone or *stricture* in the bile ducts, or perhaps to *hepatitis* or *cirrhosis* of the liver, or even *cancer* in the head of the pancreas.

Stones in the common duct are a frequent cause of jaundice. The patient notes a sharp, sudden *pain* in the upper part of the abdomen near the midline Fever soon develops, and after a few hours or days jaundice will usually appear It is first seen in the whites of the eyes, later spreading to all the skin and mucous membranes of the body

Jaundice is particularly common in middle-aged ladies who have had several children Jaundice due to cancer comes on more slowly, and there is little or no pain at the beginning In either case the jaundice will continue until the obstruction is removed, and may last for weeks or months, depending on the patient's general condition In acute hepatitis on the other hand, jaundice may appear quickly but usually subsides within a week or ten days

**Treatment** One must first find the cause of the jaundice. If the trouble is due to some parasite, such as the *malaria* parasite, suitable

medications may soon bring the condition under control If the jaundice is due to the presence of a *stone* or other obstruction, surgery will be needed for relief and cure. The sooner the obstruction is relieved the less liver damage The patient should be kept on a *low fat diet* as outlined in the Appendix Seriously ill patients should always be treated in hospital where they can be fed intravenously if necessary In cases of serious bleeding vitamin K should be administered, preferably by injections during the acute phase of the disease, and later in tablet form

## *Hepatitis*

Hepatitis is an acute inflammation of the liver caused by some infectious or toxic agent The skin may be discoloured and the whites of the eyes turn yellow Usually there is some tenderness over the liver in the upper part of the abdomen Most of these patients have fever, and many of them are very ill during the acute stages of the disease.

Various substances and organisms may be responsible for hepatitis, including germs viruses toxic agents, such as carbon tetra chloride chlorpromazine, and many other substances used either as medicines or in modern industry In rapidly fatal cases a very serious condition known as *acute yellow atrophy* may occur This is quite rare, but must be borne in mind as a possibility, pointing up the seriousness of jaundice whatever its cause

**Infectious hepatitis** often occurs in epidemics, due to certain viruses spread mainly by *contaminated food* or *water* Young people are most frequently affected Epidemics of infectious hepatitis are more common in wartime Crowding poor sanitation, and malnutrition all play their part in this disease In many cases it seems to take from two to six weeks for the disease to develop

This more common type of *jaundice* usually begins abruptly with nausea, vomiting, fever, general weakness and loss of appetite. The liver is tender to the touch In the more severe cases jaundice may be quite noticeable, but in milder cases there may be few if any manifestations of jaundice

This disease continues for ten days to two weeks and then tends to disappear In some cases the spleen is enlarged and there is often considerable *itching* of the skin as well as intermittent diarrhœa.

Bile may also be seen in the urine, particularly during the early phases of the disease.

Most cases recover after six to eight weeks, but relapses are fairly common in people who go back to work too soon Those who have to subsist on a poor diet, or who use alcohol, are likely to have a longer period of illness The patient should be under medical observation for several months even after he feels he has recovered

Hepatitis is a *highly infectious disease* The patient should be *strictly isolated* during the active phase Gamma globulin may be given to those exposed to hepatitis in the hope of preventing the disease, especially if they are already ill from other causes

**Treatment** Keep the patient in bed as long as there is any sign of jaundice abdominal pain, or tenderness over the liver At least *three weeks in bed* is advisable. The patient may get up to go to the bathroom but otherwise should remain in bed His diet should be rich in protein and carbohydrates as suggested in the Appendix, but low in fats He should also be given vitamin B complex to help restore his lost appetite and to help heal the liver He should be careful not to overexert himself

Tendency to fever may indicate a relapse. The patient should then remain in bed several more weeks, until he has made a complete recovery Steroids such as Prednisolone, may be used for very severe cases but only on the advice of the family physician

***Serum hepatitis** is also due to a virus, but is a different disease* from the infectious hepatitis described above The particular virus causing serum hepatitis seems to be transmitted either by blood transfusion or through the use of unsterile instruments in a medical laboratory, or perhaps from contaminated dental drills. This condition takes from two to five months to develop, so that the true cause is often hard to trace The onset is more gradual than in the case of infectious hepatitis Infectious hepatitis occurs more commonly in children and young adults, while serum hepatitis more frequently occurs in people who are over thirty years of age. The treatment is similar to that just described for infectious hepatitis.

**Toxic hepatitis** is caused by a wide variety of chemicals, either swallowed, inhaled, absorbed through the skin, or perhaps taken by injection It is the liver's function to detoxify or destroy any poisons circulating in the blood stream. If large amounts of a certain chemical are taken into the system, the liver itself may be injured so that it

can no longer destroy toxins or poisons Common substances causing liver damage include carbon tetrachloride, chloroform, arsenic, phosphorus, sulpha drugs, chlorpromazine, and drugs used for treating such ailments as tuberculosis and thyroid conditions If the liver has already been damaged because of malnutrition or alcoholism, toxic hepatitis is much more likely to occur

Toxic hepatitis is similar to the others just discussed, except that there may be less fever Patients suffering from this disease complain most of *itching* and *jaundice*

**Treatment** Find the toxic agent and remove it, if at all possible. Patients with toxic hepatitis should not drink alcohol under any circumstances They should be given a diet rich in protein and carbohydrates, but low in fats Most will recover if given the right treatment. One grave complication is acute yellow atrophy of the liver, which may develop in heavy drinkers or those suffering from malnutrition As the jaundice deepens in colour severe vomiting, as well as pain around the liver, may be noted This is followed by headache, mental dullness, and tremors or twitching and even convulsions, delirium, or stupor These patients are very ill and should be treated in hospital where tube feeding and intravenous fluids can be administered ACTH and cortisone are of value in those who are seriously ill with acute yellow atrophy

**Amœbic hepatitis** This disease is more prevalent in the tropics but is also found in temperate areas. Amœbic parasites find their way into the body through *contaminated food and water* Within the digestive system they multiply rapidly Some of them are then transported through the blood stream to the liver, where they lodge in the capillaries and invade the near by tissues, producing a typical picture of hepatitis similar to those described above (See page 375 for further information concerning amœbic infections of the intestines )

**Fatty liver** is due to excessive amounts of fat being deposited in the liver cells This occurs most frequently in overweight persons and is usually due to excessive intake of food, particularly fats Certain intoxicants, such as alcohol, carbon tetrachloride, and chloroform, may also produce a fatty liver It may occur in certain cases of tuberculosis diabetes anæmia, and in deficiency conditions, such as pellagra

In this disease the liver is enlarged and tender, and there may be jaundice, fluid in the abdomen, excessive bleeding, and other

evidences of liver failure The patient should be given a *high protein, low fat diet,* and two or three teaspoons of dried yeast powder in milk twice daily between meals, or two yeast tablets two or three times a day as needed He should go on a reducing diet and avoid the use of alcohol in any form—*permanently*

### *Cirrhosis of the Liver*

The most common of several forms of cirrhosis is portal cirrhosis, also known as Lænnec's cirrhosis Often it is associated with **alcoholism,** usually in older men. Poor nutrition seems to be partly responsible and may account for its prevalence among alcoholics In some cases chronic poisoning with industrial fluids, such as carbon tetrachloride, may also play a part.

In the early stages of the disease there may be nothing more than frequent attacks of *gas* and *indigestion,* with occasional *nausea* and *vomiting* and perhaps some *abdominal pain* and *weight loss* As the condition advances, the patient begins to run a low grade fever He has foul breath, jaundiced skin, and distended veins on the abdomen. So-called "spiders" are seen on the face, neck, arms, and trunk These are hairlike, reddish markings in the skin somewhat resembling small spiders As the disease continues, the abdomen becomes bloated and swollen, the mind is clouded, and there may be considerable bleeding from the stomach

**Treatment** During the severe stage keep the patient in bed He must avoid the use of alcohol in any form His diet should be rich in proteins and moderately low in carbohydrates and fat. If possible, he should have at least a quart of milk a day, as well as extra vitamins in the form of Brewer's yeast and $B_{12}$ injections weekly Salt should be restricted, particularly if there is swelling in the legs or abdomen If massive bleeding occurs, the patient should be rushed to hospital and remain there until the hæmorrhage is under control

**Biliary cirrhosis** is a rather rare condition caused by some obstruction, such as a stone in the common duct or some narrowing of the bile duct leading from the liver to the small intestine Jaundice may occur, and the skin may have a greenish-bronzed appearance. If the blockage can be removed either by surgery or some other means, the patient may make a satisfactory recovery

*Chronic Passive Congestion*

Any condition interfering with the normal flow of blood to the heart may cause an enlargement of vessels in the liver This is part of the serious condition known as chronic passive congestion It is most commonly seen when the heart itself is failing The patient suffers from shortness of breath, and his liver may be enlarged and very tender Fluid often gathers in the abdomen as well as in the lower extremities The treatment is the same as for congestive heart failure, as noted on page 260

*Cancer of the Liver*

Cancer may arise in almost any organ of the body When it begins in the stomach or large bowel, the liver may soon be involved, mainly because the blood flows toward the liver from all the digestive organs including the pancreas and gall bladder This is referred to as *metastatic carcinoma* In other words, the cancer has come from some other part of the body

Very few cancers actually arise in the liver Most of them come from elsewhere Hence the earlier the diagnosis is made, the better the patient s chance of recovery Once the cancer has begun to grow within the liver, it spreads rapidly, eventually causing jaundice and swelling in the distant tissues The condition resembles cirrhosis, but is more serious. There is no specific treatment generally available as yet, except good nursing care and keeping the patient as comfortable as possible

*Gall bladder Disease*

The gall bladder is a small pear-shaped, muscular organ closely attached to the under surface of the liver Its only function is to store and concentrate the bile between meals so there will be a plentiful supply when needed Bile from the liver is a clear, golden colour when formed, but after being concentrated in the gall bladder it turns a deep green This concentrating process sometimes results in the formation of **stones** in the gall bladder, particularly following pregnancy in commonly overweight women

Stones may form in other parts as well as the gall-bladder, but are relatively rare.

Many people with gall stones seem to have no problem at all, especially if there is one large stone But when a number of smaller stones are present in the gall bladder, the patient may feel sharp, cramplike pains all over the upper abdomen These come on an hour or two after meals The condition is more likely to occur at night, and may produce fever, nausea and vomiting as well as rapid heart and tenderness in the right upper part of the abdomen. Many patients with gall stones complain of gas and distension of the abdomen especially after eating *fried foods, fats,* and green vegetables If a stone completely blocks the common bile duct, *jaundice* will result and the skin will become yellow and very itchy This is a serious condition *that should be relieved at once, if at all possible.*

Most gall-stones can be seen by X-ray when certain contrast dyes are used to outline the stones Symptoms of severe cases of gall-stone may resemble peptic ulcer, coronary artery disease, acute appendicitis, and even shingles A correct diagnosis is therefore important, for delay could be dangerous in so serious a condition As stated above, women are more likely to be affected, particularly during the later years

**Treatment** Like most other liver conditions, these patients are best treated in hospital, particularly during the acute stage. If necessary, surgery should be carried out without delay If the patient can stand major surgery, the common bile duct should be explored and the gall bladder with its stones completely removed

Many people suffer from chronic gall bladder disease. The gall bladder fails to fill properly and will not empty in a normal manner If the X ray shows the presence of stones, and the patient is suffering from frequent bouts of gas and indigestion, it is best to have the offending organ removed Cancer sometimes occurs in the gall bladder, probably due to irritation from several stones Inasmuch as a person can live quite well without the gall bladder, it is wise to have a diseased organ removed to avoid the risk of serious complications

### *Pancreatitis*

The pancreas, an important gland situated below the liver, produces strong digestive juices necessary for assimilation of food. Pancreatitis means inflammation of this organ In some cases it may be rather mild, but in others it is very severe Most pancreatitis seems

to be related to some condition involving the bile ducts leading from the liver A stone from the gall bladder may block the mouth of the pancreatic duct and cause pancreatitis

It is surprising how many patients who are troubled with pancreatitis are alcoholics Others have suffered injuries, and still others have pancreatitis because of a peptic ulcer penetrating into the pancreas from the stomach or duodenum. In a few cases pancreatitis may follow some infectious disease, such as mumps

Patients with pancreatitis usually complain of sudden pains in the upper part of the abdomen These may be steady and severe, or dull and cramplike. The patient may have a fever from 100° to 102°, as well as tenderness in the upper abdomen, and even some jaundice if the bile ducts have been partially or completely blocked

Many of these cases come to surgery simply because the diagnosis has not been confirmed The serum amylase test is used to differentiate this condition from other similar problems with the abdomen

**Treatment** will vary according to the seriousness of the condition During the acute stage the patient is fed intravenously Later he may take some solid food, but only in small quantities and without any rich mixtures He should not take alcohol in any form, for this may only aggravate the condition Thenceforth he must live on a simple programme avoiding all stress as far as possible.

CHAPTER 37

# INTESTINAL CONDITIONS

The upper intestine or **small bowel** begins at the stomach and continues down to the colon or large bowel, measuring perhaps twenty five feet if laid out in a straight line Most of the process we refer to as *digestion* takes place in the small bowel This somewhat narrow, flexible tube is divided into three parts The first is the **duodenum.** It extends for about ten inches from the outlet of the stomach or pylorus, winds around the head of the pancreas, then across to the left side of the abdomen where it merges with the **jejunum** or second part of the small bowel The third part is the **ileum.** It connects with the **caecum,** the ascending portion of the colon, or large bowel

The duodenum is firmly fixed in place, but the jejunum and ileum are free to move around within the abdomen according to the various motions of **peristalsis** which is so important in the digestive process Peristalsis is a kneading action by which the fluids are passed from the stomach, through all parts of the small bowel, and finally into the large bowel Many fluids are poured into the digestive tract, most of which are re-absorbed with the digestive process. Thus there is a continual transfer of liquids in this remarkable process we call digestion

The inner surface of the small bowel is smooth like velvet. When seen under the microscope, however, it consists of a softly wrinkled surface containing innumerable small blood vessels. This wrinkling or undulation greatly increases the inner surface of the small bowel, a factor important in the absorption of food

Within the lumen (tube-cavity) of the bowel numerous germs or bacteria are found Most of them are perfectly harmless. In fact, some are important to our digestive process, for without their help we could not break down some of the food materials for more complete absorption. Some harmful germs, however, may find their way into the bowel through contaminated food or water, causing serious infections, the worst of which is **typhoid** (See page 391 ) Also,

various substances swallowed with the food may disturb the normal actions of the small and large bowel We will briefly discuss the more common conditions

## *Food Poisoning*

Food poisoning, also known as *acute gastroenteritis*, is an acute inflammation of the lining of the stomach and small bowel It is caused in various ways, one of which is excessive indulgence in alcohol Viruses may also produce a similar condition known as **virus enteritis** Some people are allergic to certain items of food which, though wholesome to others may act as poisons to them Others react poorly to various drugs, cathartics, and chemicals Shellfish poisoning is common in certain parts of the world

Food poisoning usually begins suddenly with a feeling of nausea and abdominal cramps, followed by vomiting, diarrhœa, and weakness Rectal burning may be intense, and the stools may contain blood and mucus All of this loss of fluid from the bowel may result in severe dehydration and shock, and the condition known as *acidosis* may develop There is pain in the abdomen with some distension, especially in the lower areas

The worst attacks of food poisoning are caused by germs Foods used at picnics, in restaurants and at home are easily contaminated by toxins or poisonous substances, produced by **staphylococcus germs** Foods most often involved are various meats, fish, pastes, custards, cream filled pastry, milk and many different kinds of desserts. In some areas this is the most common type of food poisoning The trouble seems to arise from **skin infections** on the hands of those who handle food, or perhaps by *coughing*

Within two to four hours after taking this type of contaminated food, the patient suffers from severe abdominal cramps, followed by nausea, vomiting and diarrhœa, often resulting in severe prostration and shock Most of these attacks only last a few hours and are followed by complete recovery In outbreaks of food poisoning a number of people are usually involved, all of whom have eaten the same food at the same time

**Fish and mussel poisoning** Severe poisoning may be caused by different types of fish most of which are well known in the various localities where they are found Most often there is numbness and

*In this* disease the walls of the small bowel become greatly thickened and swollen, and abscesses develop which may bore completely through the intestinal wall The affected part of the bowel is no longer elastic and flexible, and the interior becomes so constricted that food passes with great difficulty through the bowel The patient suffers from cramps in the abdomen and may have from three to five loose stools a day, as well as mild fever, lack of appetite, and some loss of weight, depending on how far the disease has progressed Diagnosis is usually made by X ray

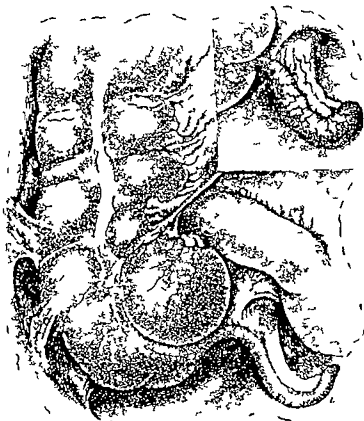
**Treatment** During the acute stage it is wise for the patient to remain in bed He should be given a bland diet and also extra multi vitamins Most doctors use some belladonna products three or four times a day After the acute stage is passed, the patient should have a restful vacation, preferably for about three months or more. He should avoid long working hours, fatigue, and emotional stress Many patients benefit by the use of steroids and ACTH, particularly during the inflammatory time of the disease Surgery may be needed, particularly if there is intestinal obstruction, fistula, or abscess But unless some crisis occurs, medical treatment is best.

### *Appendicitis*

Acute appendicitis is the most common of all serious intestinal conditions The appendix is a small tube about four inches long It is located at the end of the cæcum or first part of the large bowel However, this small, pencil sized tube may become badly inflamed due to a fecalith or stone forming within it This may then produce stenosis or kinking of the appendix, followed by further *inflammation* and infection from certain germs usually present in the intestinal tract This causes pain in the abdomen, usually on the right side, if the appendix is located in the normal position

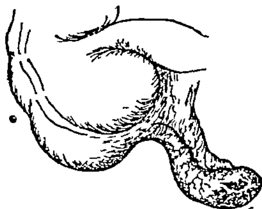
If the inflammation continues to increase, the appendix may *rupture,* spreading the bowel contents throughout the lower part of the abdomen causing a serious state known as peritonitis When this happens loops of bowel may become adhered to each other, and the infected material may be walled off into a localized abscess close to the site of the perforated appendix.

Appendicitis usually begins with pain in the middle of the abdomen followed by nausea, vomiting, and occasionally diarrhea After



The appendix, showing its normal attachment to the cæcum or first part of the large bowel. Deaths due to appendicitis are usually the result of delay Early diagnosis saves lives.

Top right corner shows typical case of inflamed appendix.



Ruptured appendix

several hours this pain seems to shift to the lower right side of the abdomen and is continuous and dull Coughing and sneezing make the pain worse The patient usually has a mild fever, less than 102°, unless the appendix has ruptured and inflammation has spread Sometimes the appendix is located in other areas of the abdomen, but most often it is down low on the right side.

Many other conditions in the abdomen may resemble appendicitis Among these are pancreatitis regional enteritis, strangulated hernia All of these must be considered in diagnosing for acute appendicitis

**Treatment** Surgery is the reliable method of treating acute appendicitis It is far safer to take out a normal appendix than to run the risk of a ruptured appendix followed by widespread peritonitis. The patient should therefore be taken to hospital without delay and the appendix removed *before* it ruptures Meanwhile, keep an ice bag over the abdomen, giving nothing by mouth except sips of water if the patient is very thirsty Avoid laxatives, for these may rupture the appendix *For severe pain, give two aspirin tablets* Call the doctor the moment you suspect acute appendicitis

*Peritonitis*

Peritonitis is an extremely serious condition due to *infection* within the abdomen itself As mentioned above, it may come from acute appendicitis, a ruptured appendix or a perforated peptic ulcer It may also follow ulcerative colitis, pancreatitis, and typhoid fever Gonorrhœa involving the female genital tract may also produce peritonitis Any foreign body penetrating the abdominal wall, such as a bullet or knife, may result in peritonitis Because of the inflammation loops of bowel may become glued together forming troublesome adhesions During the acute stage the patient lies quietly with shallow breathing for any movement increases the pain He tends to draw up his legs and hunch his shoulders *He has a high fever* and severe pain As the condition progresses, *intestinal obstruction* may result

**Treatment** All patients with peritonitis should be treated in hospital The condition is far too serious to consider any form of home treatment, particularly during the acute stage The patient should take nothing by mouth Keep him lying quietly in bed until the

doctor comes Surgery may be needed to drain an abscess or to relieve intestinal obstruction Many cases of peritonitis can be treated without surgery, unless there is obstruction of the bowel

### *Intestinal Obstruction*

Intestinal obstruction is common, particularly in elderly people and those who have undergone extensive surgery of the abdomen Bands of *adhesions,* or pressure from near by tumours, are the usual cause. Sometimes a loop of bowel will be caught in a hernia Gall stones may also be responsible for obstruction In a few cases *intus susception* (a portion of the bowel being folded inside the rest of the bowel) and *volvulus* (twisting of the bowel) may be responsible Immediate surgery is the only safe treatment for these

Infestation with large round worms may also cause intestinal obstruction The *worms* may be so abundant in the bowel that the opening becomes entirely blocked Finally there is the *paralytic ileus* which sometimes occurs after operations or following an attack of peritonitis

Complete obstruction of the small intestine causes cramplike pains followed by vomiting Later the patient may develop symptoms of shock unless the obstruction is relieved When the obstruction is in the lower bowel, fæcal vomiting may result, and there may be a complete lack of any bowel movement for several days

**Treatment** Intestinal obstruction is a serious condition Prolonged vomiting changes the chemical balance of the blood and eventually results in shock and severe dehydration All such patients should be treated in hospital In most cases surgery is the method of choice The sooner the operation is performed the better the patient's chance of making a good recovery

### *Mucous Colitis*

Mucous colitis, more correctly known as an *irritable colon,* is a common disorder of the large bowel, producing discomfort and irregular bowel habits Most patients suffering from an irritable colon are tense, anxious, and hurried For years their bowel habits have

been faulty. Many of them eat rapidly and at odd times and often fail to heed the call of nature to move their bowels. They use strong laxatives and enemas frequently. These only tend to make the condition worse.

Normally the colon is intended to store the waste material until most of the fluids have been removed. The result is a soft, well formed stool consisting mainly of colon bacteria and non absorbable food materials. People who suffer from irritable colon do not have normal peristaltic or wavelike movements in the large bowel, but rather irregular and erratic contractions which are particularly noticeable on the left side when viewed under the X ray fluoroscope. These peculiar movements retard the normal evacuation of the fæcal material, which in turn becomes excessively dehydrated and hard.

It is part of the colon's function to absorb fluid. Therefore if the stools remain too long in the colon without being passed, they become hard and dry. Feelings of **bloating** or fullness develop because gas is not absorbed or normally expelled. Because the bowel becomes irritated, excessive amounts of **mucus** are produced within the bowel, resulting in mucous colitis. Some patients suffer from constipation, alternating with periods of loose bowel movements. In still others persistent diarrhœa may continue for years.

Many of these people also suffer from **hæmorrhoids**. Streaks of blood may appear in the stools. For this reason, all patients with bleeding in the stools must be examined carefully, both by X ray and also through the proctoscope and sigmoidoscope to be sure there are no small growths or polyps which could become malignant.

**Treatment.** An irritable colon is not necessarily serious. By all means *break the laxative habit*. Enemas should rarely be used. This may aggravate the symptoms for a time, but if the patient is ever to improve, he must give up the use of strong laxatives and enemas. Rest and relaxation are important. However, some mild regular physical exercise is very beneficial. Meanwhile, he should avoid all foods that may irritate the bowel. It is best to take a bland diet for the present, but some fruit and low roughage vegetables should also be included.

Try to have a bowel movement at the same time each day, devoting at least ten or fifteen minutes to the attempt. However, it is important to avoid straining. The best time for establishing a regular bowel habit is fifteen to forty five minutes after breakfast. Drinking

two glasses of water immediately after getting out of bed in the morning will stimulate a normal bowel movement. If no movement occurs for three days, use a low enema or an oil retention enema.

Patients who habitually use laxatives may need some stool softening medicine. Mineral oil will also help as a lubricant. But it should not be used constantly for any length of time as it absorbs and carries out of the body the fat soluble vitamins. Olive oil is another excellent and often beneficial substance for the bowel. Gentle heat to the abdomen will increase peristalsis and aid in developing more normal habits. The diet should preferably be bland, avoiding all harsh substances until better bowel habits are developed.

### *Constipation*

Constipation means difficult or infrequent passage of the fæces. In some cases it is due to mechanical obstruction of the intestines, such as cancer, diverticulitis, or perhaps to some functional cause, such as an irritable colon discussed above. In most cases there is no actual obstruction.

Many elderly people suffer from constipation, probably because they do not take sufficient fluid. They may think they are drinking enough, but careful observation may reveal that they are having only two or three glasses of liquid a day. For normal bowel habits one should drink from *six to eight glasses* of fluid each day.

Sometimes constipation results from ignoring the normal call of nature. Many people suffering from constipation become dependent upon laxatives in early childhood. This is most unfortunate, for it means that the child may be dependent on drugs for the rest of his life. As far as possible *do not use an enema* on a child unless absolutely necessary. Laxatives and enemas are only for unusual conditions. Nature will provide for the normal needs of the body without artificial help.

**Treatment** consists of developing normal bowel habits as discussed on page 342 under Mucous Colitis. If necessary some mild laxative such as milk of magnesia may be used. The diet should be rich in fruits and vegetables for these are natural laxatives. The patient should have regular meals and avoid nervous tension. He should sleep at least eight hours a night and take regular exercise. Many cases of constipation are relieved by the use of prune juice,

figs, bananas, or other natural laxatives Sensible habits of living, plus six to eight glasses of water per day, and a reasonable amount of exercise will cure most people of constipation But in obstinate cases, it would be wise to have an X ray of the large bowel, just in case there is something needing correction

*Diarrhœa*

Diarrhœa means the frequent passage of loose, watery stools This occurs in many different conditions of the digestive tract. Diarrhœa is not actually a disease in itself, but often accompanies conditions such as regional enteritis, sprue, ulcerative colitis, various infections of the bowel, and also most forms of gastroenteritis. In tropical countries, amœbic infestation, or infections caused by germs of the "dysentery group" are common causes of diarrhœa One other common cause of trouble is the **irritable colon** discussed on page 341

Diarrhœa is often seen in people who take excessive amounts of laxatives Others have it because they are allergic to certain substances, or even common foods It is always important to run down the cause and eliminate it if at all possible.

Some people have frequent loose stools for years without any other evidence of disease Others develop diarrhœa only when under severe emotional strain In still other cases there may be some allergic response to such foods as milk, wheat, eggs and other commonly used substances. Many of these people complain of heartburn, nausea, and gas, as well as straining at the stool Such people should be placed on a low residue diet, as outlined in the appendix They should eat slowly and take vitamin tablets and also hydrochloric acid if this is indicated If the stools contain large amounts of fat and undigested material the trouble can often be corrected by the use of pancreatic enzymes and bile salts in small quantities after each meal Be sure the patient has calcium in some form, preferably in dairy products, such as curds, buttermilk or similar foods.

**Treatment** Certain foods, such as figs, bananas, and prunes, have a strong laxative effect on the bowel One should eliminate these until the loose stools are brought under control A teaspoonful of **paregoric** taken every two hours until the loose stools cease will also be beneficial Pectokab and similar medicines are useful for

milder attacks of diarrhœa But all prolonged or severe cases should be referred to a physician, especially if the stools contain mucus or blood

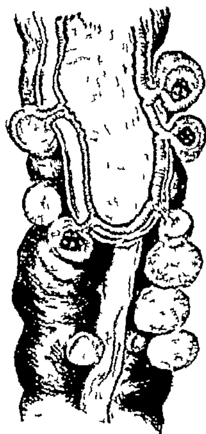
*Diverticulitis*

Sometimes a pocket or diverticulum develops in some weak spot of the intestinal wall This allows the inner lining of the intestine to bulge through between the muscle layers, forming a small pouch or pocket, a condition commonly seen in the later years of life Usually there are few if any symptoms the condition being noted on the routine X ray of the colon This is referred to as **diverticulosis**

However there are times when one or more of these pockets will become very irritated The presence of foreign material in the pocket causes inflammation and infection, or **diverticulitis** It usually involves not only the small pocket or diverticulum, but the surrounding walls of the colon as well A local abscess may form, causing spasm and swelling and even obstruction of the bowel at times In some cases the diverticulum may rupture, causing peritonitis. If blood vessels are involved there may be considerable bleeding in the bowel Occasionally the condition will quieten down completely, but there are times when a surgical operation may be needed to bring relief and to prevent the further spread of infection

Patients with diverticulitis often complain of pain in the lower abdomen particularly on the left side There may also be nausea, vomiting and some distension of the abdomen, particularly if intestinal obstruction has occurred In the chronic stage the patient passes through periods of alternating *diarrhœa* and *constipation* along with *cramps* and gaseous *distension* Pain and distress in the left lower part of the abdomen may be almost constant If the inflammation is near the ureter or bladder, there may be also some urinary frequency and burning Many cases of "unexplained fever are later found to be due to chronic diverticulitis

**Treatment** During the acute stage the patient should remain in bed and take nothing but clear fluids for several hours Local applications of heat such as the use of a hot water bottle heating pad, or *hot packs* will often bring relief This can be repeated three or four times a day as needed **Penicillin,** 600 000 units with one



Sometimes a pocket develops in a weak spot of the intestinal wall. As a result the inner lining of the intestine bulges out owing to fecal material. This condition causes infection, with symptoms of cramps and fever. Rupture of these bulges causes peritonitis.

gram of streptomycin, may be given once or twice daily for the first *three days*. Broad-spectrum antibiotics, such as **Terramycin,** 250 mg *four times a day*, are also valuable. It is best to avoid laxatives, but the patient may receive some benefit from *an* **oil enema,** using about *3 ounces of olive* or mineral oil which should be left in the bowel. *The enema* should be given slowly and not forced past any obstruction that may be present.

*In* chronic diverticulitis, the treatment is similar. The patient should be given a **low residue** diet, as suggested in the appendix. Some suitable antispasmodic medicine, such as tincture of belladonna, 8 drops orally before each meal and at bedtime, may help to bring relief. An *excellent* medicine for this purpose is Donnatal, one capsule or tablet after *each meal*. In more severe cases surgery may be indicated, particularly in the presence of an abdominal abscess or intes-

tinal obstruction Surgery is also advisable when X rays show the presence of a partial obstruction that might be due to either diverticulitis or cancer, or if there is any marked bleeding from the bowel

*Ulcerative Colitis*

Chronic ulcerative colitis is a severe, prolonged inflammation of the colon or large bowel in which ulcers form in the walls of the colon, resulting in the passage of bloody stools mixed with pus and mucus The true cause is as yet unknown Some virus or bacteria may have obtained a foothold in the wall of the bowel Severe nervous strain and tension may also be a factor Scattered bleeding points appear on the inner surface of the bowel followed by abscesses that burrow between the layers in the wall of the colon This causes the inner lining of the colon to break down, resulting in hæmorrhage, followed by more ulceration All this gives a rough, cobblestone appearance to the lining of the bowel At the same time, scar tissue in the colon reduces normal flexibility and interferes with the digestive process

Chronic ulcerative colitis usually begins in the lower part of the bowel and spreads upward The disease seems to attack young adults most frequently The first sign of trouble may be an increased urgency to move the bowel, followed by cramping pains in the abdomen and bloody mucus in the stools As the process extends upward, the stools become more loose and watery, so that the patient may have from *ten to twenty* loose bowel movements every day, often associated with abdominal cramps and rectal straining The more severe cases often continue night and day with little relief All this loss of blood and fluid from the bowel results in weakness, fever, nausea, vomiting, loss of appetite, and anæmia.

When the disease occurs low down near the rectum the stools are more normal But between bowel movements there are rectal discharges of mucus and some blood **Hæmorrhoids** are often present, as well as **anal fissures**, and **fistulas** However, these complications are not present in all cases

Some patients with chronic ulcerative colitis also develop **cancer** in the irritated area Other complications include general weakness loss of weight poor nutrition abscesses in the skin and even cirrhosis of the liver A thorough medical examination, including a sigmoidoscopic study and X rays of the upper and lower bowel should always

be made Most cases of ulcerative colitis are of long duration At times the patient may feel fairly normal, only to be disappointed with the return of further trouble A few cases seem to recover completely after the first attack

**Treatment** **Rest the bowel** as much as possible This will help to preserve the patient in a good state of nutrition so that he can combat the disease **Strict bed rest** with plenty of fluids and a high **protein** diet are very important. Foods should be attractively prepared and the patient encouraged to eat The diet should contain at least 2500 calories a day, given in three or four general meals. Patients who are very ill should be hospitalized and given necessary fluids by vein

Many doctors give vitamin K tablets to increase the clotting power of the blood and thus help control the hæmorrhage from the bowel The combination of paregoric and tincture of belladonna will help to reduce the frequency of bowel movements and relieve the intestinal cramps A prescription for this is given on page 397 This medicine should be given three or four times a day as needed Sulphathalidine and sulphaguanidine tablets are often of value in helping to control the bacterial growth within the bowel, three tablets twice a day being the usual dose. Severely ill patients should also be given **penicillin,** but other antibiotics are not advised because they may irritate the bowel

Many patients have benefited from the use of ACTH and hydrocortisone These will not cure the disease, but they may help to bring on a period of easing of the disease, during which the patient may greatly improve. **Surgery** may be needed if medical treatment fails. All of the diseased portion of the bowel should be removed, if at all possible, particularly if intestinal obstruction or malignancy develops Surgery is also advisable in cases of severe uncontrolled hæmorrhage.

The attitude of the family is important in all cases of ulcerative colitis The patient is often discouraged particularly when the disease is of long duration The family must realize that this is a serious disease and that the patient is not likely to make a rapid recovery Whatever method of treatment is followed, a wholesome optimistic attitude will help the patient adjust to his disability and bear his discomfort bravely Try to eliminate all causes of tension within the home so that the patient will be spared all undue strain He is already fighting





Ulcerative colitis, a serious condition involving the large bowel.

Picture at left shows early stage, and, right, late stage of the disease. ing is usually slow and extensive scarring of the colon walls generally follc

not eat normally, feels weak, and fails to grow Many of these dren do not tolerate carbohydrate foods very well. In some case disease appears to be caused by a sensitivity to gluten, the pr in wheat.

Treatment Follow the method of treatment suggested for sp gradually increasing the diet as the child is able to absorb more f It may be necessary to completely eliminate wheat and wheat prod from the diet. Do not give starchy foods until there has been s factory growth and development. Most children eventually reco although it may take a year or more to do so

*Adhesions*

An adhesion is an abnormal connection or attachment betw one organ and another Adhesions occur most frequently betw the various loops of the bowel within the abdomen Any inflam tion within the abdominal cavity may result in adhesions. Most these are not serious Almost everyone who has had an abdom operation may have one or two small adhesions that never g any trouble.

However when several loops of bowel are closely bound togeth it may be difficult for the fluid contents to pass through and this m result in some degree of intestinal **obstruction** discussed on pa

what might well be a losing battle unless all concerned realize the seriousness of his condition

## *Sprue*

Sprue is a serious disorder affecting people in many parts of the world It is primarily a disease of the digestive organs and appears to be closely related to certain deficiencies in the diet. It is most frequently seen in tropical areas. Patients with sprue complain of weakness, loss of weight, gaseous distension, soreness of the mouth, diarrhœa, and increased pigmentation of the skin, especially over exposed areas of the body The tongue is red and sore and very tender Often the abdomen is distended, while the rest of the body becomes thin and emaciated

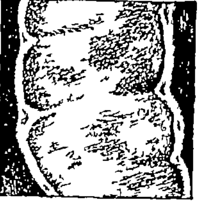
In many cases the stools are bulky and foul smelling, due to incomplete digestion and poor absorption of food Bluish spots may appear under the skin (purpura) and the patient may feel listless and apathetic Not all cases of sprue are as pronounced as this Milder cases occur in which some of the characteristics may not be too obvious However, most patients suffer from **anæmia,** and appear rather pale and weak.

**Treatment** For severely ill patients **bed rest** may be needed for a time The diet should be **low in fats,** high in vitamins and proteins, similar to those listed in the appendix. During the earlier stages of the disease it may be advisable to exclude wheat and rye products from the diet until the patient feels better **Extra vitamins** should be given, including injections of $B_{12}$ at weekly intervals.

Good nursing care will usually help to bring relief and a sense of well being Liver extract and iron should be given to patients with marked anæmia ACTH has produced dramatic results, apparently by reducing the inflammation and helping to restore the body functions to normal Prednisolone tablets, 5 mg, each day for a few weeks, will help to tide the patient over until he feels better

## *Celiac Disease*

This chronic disorder of infants and young children is similar to sprue. Unless corrected, the child may show marked deficiency symptoms and fail to grow normally The disease usually comes on within the first few years of life. The child becomes irritable, does





Ulcerative colitis, a serious condition involving the large bowel.

Picture at left shows early stage and right, late stage of the disease. Healing is usually slow and extensive scarring of the colon walls generally follows.

not eat normally, feels weak, and fails to grow Many of these children do not tolerate carbohydrate foods very well In some cases the disease appears to be caused by a sensitivity to gluten, the protein in wheat.

**Treatment** Follow the method of treatment suggested for sprue, gradually increasing the diet as the child is able to absorb more food It may be necessary to completely eliminate wheat and wheat products from the diet Do not give starchy foods until there has been satisfactory growth and development. Most children eventually recover, although it may take a year or more to do so

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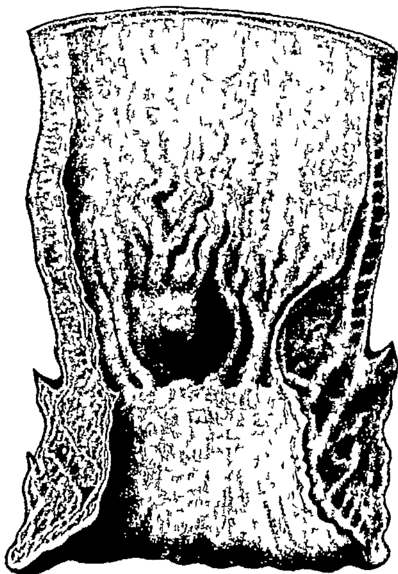
Spastic colon left, causes severe constipation and pain. Greatly enlarged colon, right has lost its "tone" The result is chronic constipation.

341) This is more frequently seen following a **ruptured appendix**, a pelvic abscess, or a knife or bullet wound involving the abdominal wall. Anything that causes **peritonitis** may result in numerous adhesions

The only harm that comes from adhesions is intestinal obstruction. If this does not happen, there is no need for worry But if you have a cramplike pain in your abdomen that lasts more than two hours, you ought to see a doctor the same day

*Tumours and Cancer*

Not all tumours are malignant. Many are benign, but they can cause serious trouble within the bowel by obstructing the lumen of a tube. Fairly large non malignant tumours may develop within the stomach, causing a chronic loss of blood Although not malignant, these can be serious **Polyps** or small growths in the colon are also common and are often responsible for blood in the stools. Over half of those who have polyps in the colon eventually develop cancer as well. For this reason all **polyps should be removed**, either through the sigmoidoscope, if they are located low down, or by surgical



Hæmorrhoids, a common condition involving the rectum and ad jacent tissues. The large swelling consists of greatly dilated blood vessels. *Surgery is the best treatment for this condition.*

CHAPTER 38

# RECTAL TROUBLES

Rectal troubles are common in almost every family Many people suffer from constipation, others, from diarrhœa Still others complain of "mucous colitis —griping pains in the upper and lower bowel, as well as gaseous distension, and other uncomfortable symptoms All these, discussed in chapter 37, are due to disturbances of function, not to any actual organic disease

The rectal outlet is known as the *anus* a muscular ring which is largely under voluntary control Under normal conditions most people have one or two well formed bowel movements a day They should be brown in colour and free from parasites, blood, mucus, or other abnormalities Loose, watery stools are never normal Nor are hard, rocky stools that irritate or tear the rectal outlet Neither constipation nor diarrhœa are normal When these occur, the cause should be diligently sought and corrected, as indicated in the preceding chapter

### *Painful Bowel Movements*

Lack of sufficient fluid is a frequent cause of hard, dry stools Neglecting the normal call of nature is another reason for trouble. These dry stools often cause severe irritation of the anorectal tissues, and this aggravates the condition Unfortunately, many have become habituated to the use of strong laxatives in early childhood, when they were too young to know what was happening As a result, most of them have to suffer for the rest of their days because of this unfortunate habit pattern Castor oil, calomel or other strong laxatives must not be given to babies or young children When absolutely necessary one may occasionally need to use some mild laxative such as milk of magnesia

### *Proctitis and Cryptitis*

This is severe inflammation of the rectal lining or mucosa The true cause is not always known In some cases it may be associated

with ulcerative colitis In others, it may be due to the side effects of *taking certain broad spectrum antibiotics In still others the condition* may arise from an allergy to certain foods

In this condition a feeling of rectal discomfort is associated with repeated urges to evacuate the bowel On attempting to do so, the patient usually passes nothing more than some gas or mucus Occasion ally the discharge is bloody and may even contain some pus Stools are *likely to be hard and covered with mucus In the lower bowel* there may be pin point abscesses and superficial ulcerations that tend to aggravate the condition Other complications such as hæmorrhoids, anal fissures and severe itching, are often present

**Treatment** Moist heat, either using an infra red lamp and cotton pads soaked in water, or else the use of a **sitz bath** four to six times a day *will help to bring relief For further instruction, see appendix.* Gentle instillation of about two ounces of warm mineral or olive oil into the rectum will help to soften the hardened stool This should be repeated daily as needed **Medicated suppositories** containing some local healing agent should be inserted at bedtime and the first thing in the morning

*Certain medications containing belladonna are often useful in* quieting the irritated bowel and in reducing the amount of gas and nervous tension so often associated with this condition Some other suitable **bulk forming** medicine will help to restore the normal functions of the large bowel The patient should take plenty of fluids.

In severe cases bed rest is often necessary until the pain is under control *The patient, however, should continue with sitz baths and* hot applications, including hot packs to the abdomen, as shown on page 91

For the present, the diet should be of a non residue type as out lined in the appendix The patient should not use any foods containing small seeds, such as berries, tomatoes, etc Roughage should be avoided for the present, but later *these can all be added to the diet*

### *Anorectal Abscess*

This condition often follows proctitis, just described above. In flammation within the rectum may eventually find its way to the out-side *causing abscesses that discharge foul-smelling pus* Usually there is painful swelling with redness and tenderness This is particularly

noticeable when walking, sitting, or having a bowel movement. Surgery is usually recommended not only to drain the abscess but to attempt to remove the cause

### *Fistula*

Anorectal fistula or canal means an opening through the skin coming from the rectum to the outside Often there are several fistulous openings at the same time. This condition seems to be more frequently associated with ulcerative colitis or regional enteritis, which are discussed elsewhere in this book Local treatment includes the use of **sitz baths** as noted above. However, most of these cases require surgery before they can be completely cleared

### *Fissure*

An anal fissure is a crack in the skin at the outlet of the rectum This irritation usually extends down to the muscle fibres and is very painful Anal fissures are often associated with other bowel disorders, such as chronic diarrhœa or severe constipation, and also with the passage of large, hard stools This painful disorder often causes severe spasm of the anorectal outlet Any stretching of this area causes intense distress The trouble is sometimes associated with syphilis, chancroid, tuberculous ulcers and other infectious conditions.

**Treatment** Follow the suggestion for treating proctitis on page 356 If the fissure is deep, the whole area may have to be removed by surgery Before surgery, one should have an X ray of the entire gastrointestinal tract to be sure no other serious condition is present higher up in the bowel

### *Hæmorrhoids or Piles*

Hæmorrhoids or **piles** are due to swelling or enlargement of the veins that supply the rectal outlet of the body This painful condition is often complicated by localized inflammation and bleeding, and also thrombosis in many cases People who suffer from constipation and other bowel disorders are more likely to develop hæmorrhoids Hæmorrhoids are also more common in pregnancy, and in conditions affecting the liver and upper bowel.

External hæmorrhoids can be readily seen, for they actually lie outside the anorectal junction Internal hæmorrhoids are soft and dark coloured and usually irregular in shape When very large, they may protrude through the anus Straining at the stool may bring them down This may be followed by strangulation of the hæmorrhoid with severe pain

Hæmorrhoids are the *most common cause of rectal bleeding* The blood is bright red and may be noted on the toilet paper, and also covering the surface of the stool or dripping into the toilet bowl after the stool is passed However, because **cancer** of the rectum may possibly also be present, a thorough examination should be done in all cases of hæmorrhoids One should never be satisfied to consider hæmorrhoids as the correct diagnosis until all other causes of rectal bleeding have been ruled out.

**Treatment** Small hæmorrhoids that cause only slight bleeding may not require any treatment beyond making sure there is nothing more serious Try using stool softening medications, such as Metamucil, methylcellulose tablets, or hydrophilic psyllium mucilloid two tea spoons a day in a glass of water The patient should take at least **six to eight glasses** of water a day The diet should be rich in fruits and vegetables He should **avoid straining** at the stool In cleaning after a bowel movement, it is better to pat the area with soft, slightly damped toilet tissue or wash gently with water and pat dry with a soft cloth or soft toilet tissue

In more complicated cases surgery should be done *Thrombosed hæmorrhoids* can be removed under local anæsthetic, if they are located on the outside But internal hæmorrhoids require general anæsthesia The patient should be hospitalized and well prepared before surgery is attempted Most doctors advise against injection treatment because of the danger of complications. Following surgery the patient should have four to six **warm sitz baths** a day and also bed rest as long as may be needed for complete healing

## *Rectal Prolapse*

This is a more serious condition in which a portion of the rectum protrudes through the anal ring It most often occurs in cases of straining at the stool The condition can be prevented by developing proper bowel training habits and keeping the stools soft and well

formed Any condition such as hæmorrhoids or rectal polyps should be properly treated Surgery is usually advisable in all cases of rectal prolapse.

*Rectal Injuries*

Although the rectal area is fairly well protected, injuries are some times caused by kicks, falls fractures, and insertion of foreign bodies into the rectum Trouble may also arise through swallowing bone fragments and other things that perforate or tear the tissues If a foreign body is present in the rectum—this is not uncommon in children—the rectal area should be thoroughly cleansed with soap and water and the foreign body carefully removed Great care must be taken to avoid further damage to the tissues All severe cases of this type are best treated in hospital

**Rectal stricture** or narrowing of the anorectal canal often follows injuries to the rectum It may also follow surgery for hæmorrhoids and other rectal problems A rectal stricture is a distressing condition that usually results in constipation and gaseous distension Try to keep the stools soft, as suggested on page 358 Take plenty of fluids, and avoid too much roughage in the diet **Corrective surgery** may be the only solution to this problem

**Bowel incontinence** Lack of voluntary control of bowel movements is another distressing condition that sometimes follows an injury to the anal area It also occurs in elderly people who have lost control owing to a stroke or other vascular injury Proper bowel training may enable the individual to control his movements fairly well and so avoid trouble after having the first movement in the morning Corrective surgery is possible in some cases This should be done by a good general surgeon or a rectal specialist

*Rectal Itching*

Itching is more common around the rectum than in any other part of the body The trouble may be due to allergic conditions, irritating soaps tight clothing the use of antibiotics by mouth, or the presence of pinworms and other parasites Local rectal conditions such as hæmorrhoids may also be responsible Female genital disorders often extend to the rectal area Fungus infections, trichomonas and

various skin parasites must also be considered. Patients with jaundice, uræmia, or diabetes often suffer from intense itching, which only disappears when the underlying condition is brought under control.

Often the itching is worse at night and may be aggravated by heat and scratching. Soon the skin is red and there are scratch marks with moist, oozing areas, later followed by a whitish grey appearance. Fungus infections are particularly irritating, especially if allergic factors are complicating the condition.

**Treatment** Keep the skin clean and dry and free from irritation as far as possible. After a bowel movement, clean the anal area by patting with moistened soft, toilet tissue. Avoid the use of harsh soaps and other strong detergents for the present. If broad spectrum antibiotics such as Terramycin have been used, these should be discontinued. Avoid the use of greasy and oily preparations. Dusting the irritated area with corn flour or applying calamine lotion several times a day may *help to relieve the itching. **Sitz baths and cold compresses*** used several times a day will also help. **Hydro-cortisone cream** or prednisolone ointment are highly effective and may be applied once or twice daily. An aspirin tablet taken every three hours and at bedtime may help to reduce the irritation and allow the skin to heal.

# INTESTINAL WORMS AND PARASITES

Worms and other intestinal parasites are found in every part of the world However, they are more common in tropical and sub-tropical areas and are more prevalent during the rainy seasons Most of these worms and parasites gain entry into the body either through the mouth or through the skin of the feet.

**Round worms,** the giant intestinal parasites that cause the disease known as **ascariasis,** are found in almost all countries These worms, which are off white in colour are usually as long and thick as an ordinary pencil and are most frequently seen in children Eggs produced by them are passed in stools With modern toilet facilities danger of infection is less But if the soil in which children play becomes contaminated with the eggs, they are easily transferred to the mouth on dirty fingers particularly by children living under unhygienic conditions

Round worm eggs may remain alive in the soil for many months. There is always greater danger of contamination where human wastes are used in fertilizing vegetables Great care must be taken to be sure all foods are thoroughly cleansed and sterilized by cooking before being used

When the round worm eggs reach the duodenum or small bowel they quickly hatch The young worms burrow into the intestinal wall and then migrate to the liver and from there to the heart and lungs producing bronchitis. Later they reach the small intestine again where they develop into mature worms causing nausea and vomiting loss of weight, fever, nervousness, and irritability Many patients complain of colicky pains and diarrhœa A mass of writhing worms in the intestine may produce complete **obstruction of the bowel**

The adult worms may migrate through the intestinal walls and **cause severe peritonitis.** They may find their way into other areas, causing appendicitis gall bladder trouble, and liver disease When the worms die, they cause toxic reactions, such as swelling of the face loss of appetite and severe nervous symptoms

**Treatment** **Piperazine citrate syrup,** two teaspoons twice a day for one week followed by a week without the medicine, after which treatment is repeated, will usually get rid of the worms Young children should be given half this adult dose Another method is to use Hexylresorcinol tablets For adults the dose is 100 mg taken at one time with water For children, smaller doses according to age as indicated But try the piperazine citrate first

*Hook worm*

Hook worm is a serious disease caused by small worms which attach themselves to the walls of the intestines Within the bowel they cause serious bleeding and poison the patient as well Hook worm infections are found chiefly in warm, moist areas of the tropics, but are also discovered in some temperate zone areas

*Hook worm is most frequent in rural areas where the soil is* loose and sandy and where the majority of people do not have proper sanitary facilities Female hook worms produce from 5,000 to 10,000 eggs per day which are passed in the stools Under favourable conditions such as out in the fields in warm weather, the eggs soon hatch and given the opportunity, the tiny worms penetrate the bare feet of those working in the fields. People whose living conditions do not include proper latrine facilities may become infected not only through the feet but also through the arms and legs.

The tiny larval worms quickly penetrate the skin causing local itching and inflammation They then enter the smaller blood vessels and are carried to the lungs where they make their way to one of the bronchial tubes and then down into the small intestine and finally develop into adult worms As the worms pass through the lungs they cause *severe* **bronchitis** *It takes six weeks from the time the larva* penetrates the skin until the eggs appear in the stool

Hook worms may live in the body for several years. They feed mainly on blood which they get by attaching themselves to the wall of the bowel and sucking from the smaller vessels They even produce a type of toxin which increases the bleeding produced by the bite of the worm

Patients with hook worm disease appear pale and are often weak They complain of dizziness, ringing in the ears, headache, and are easily fatigued. The hair is dry and the facial expression dull and



Irritated and upset children may be so because of some type of worm infection.

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if one member of the family is infected all the others should be treated as well for this infection may rapidly spread through whole families or groups living in the same environment

Some people have slight infections of pinworms without any noticeable symptoms Others complain of **severe itching** around the anal areas still others note a poor appetite loss of weight, **bed wetting,** sleeplessness irritability, grinding of the teeth, nausea, vomiting, and even *appendicitis in some cases Pinworms sometimes migrate into the* vagina and produce intense **inflammation** in the female organs. In young children they may cause convulsions Mothers often notice the white worms on the outside of the freshly passed stool of a child, or even crawling around the anal region of the baby after he has been put to bed

**Treatment** Treat all members of the household at the same time. Piperazine is the most effective agent against pinworm infestation It *should be taken a half hour before breakfast followed* by a glass of water This hould be continued for seven days in succession For young children the daily dose is a half teaspoon of **piperazine citrate syrup** Children from two to six years of age, one teaspoon, from six to twelve two teaspoons, over twelve, four teaspoons daily for seven days If the patient cannot take piperazine or is allergic to the drug give gentian violet enteric-coated tablets daily for ten days, the dose being a one grain tablet three times a day A new medication, **Povan** (pyrvinium pamoate) may be given in a single dose (one teaspoonful for each 22 pounds of body weight ) Repeat dosage in seven days if necessary

**Prevention** Poor personal hygiene plays an important part in this disease. Teach the child to wash his hands thoroughly after the toilet and before meals Thorough bathing of the whole body daily will help to prevent infection Boil the underclothes and bed sheets every day, or at least two or three times a week Keep the child s nails trimmed short to prevent further infection Scrub all his toys thoroughly with soap and water and keep him clean *This will protect* other members of the family and the community

## *Strongyloides Infection*

Threadworm or **strongyloidosis,** is a troublesome infection caused by a delicate worm which invades the lining of the digestive

organs Like the hook worm, the larvæ of this worm develop in contaminated soil, penetrate the skin of the bare feet, and thus enter the human body They find their way to the intestinal organs, causing irritation all through the digestive tract This disease is less prevalent than hook worm and less dangerous, but it is found in all the warmer areas of the world

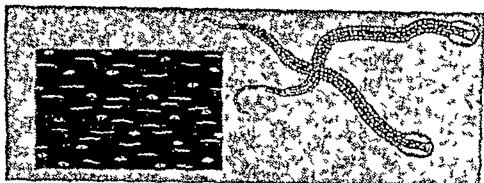
Most patients with threadworm complain of periodic bouts of **diarrhœa** alternating with **constipation** There may be some anæmia, weight loss, nausea, vomiting as well as fever and cough In some cases there is a tenderness over the liver indicating hepatitis, probably due to the presence of worms

**Treatment** Gentian violet tablets, enteric coated, should be given three times a day with meals for a period of three weeks If this fails, try dithiazanine, 200 mg tablets, three times a day for three weeks Prevention consists of employing proper sanitary disposal of human wastes, wearing shoes and treating all patients in the family and community who are affected with the disease

*Whipworm*

Whipworm infections are common in all warm, moist climates Hundreds of millions of people have this disease Children are more frequently and more heavily infected than adults The worms live primarily in the large bowel and may also be present in the appendix. The female worms lay thousands of eggs daily which are passed in the stools Without proper sanitary facilities the soil soon becomes infected with these parasites The disease is spread through food contamination or by placing contaminated fingers in the mouth while working in the soil Compared with hook worm this disease is much less damaging to the human system However, patients complain of nausea, vomiting, constipation flatulence a slight fever and headache, and even some pains resembling appendicitis In a heavy infection the clinical picture is that of a severe **anæmia** with blood streaked diarrhœa This is due to the presence of worms embedded in the mucosa lining the rectal area The worm s eggs are usually found in the stools upon careful examination

**Treatment** The best drug is dithiazanine, four tablets two or three times a dav for five days Children need correspondingly lower doses Prevention is only possible by the proper sanitary disposal of



Right trichina worms greatly enlarged. At left is the actual size of trichina cysts in the muscle tissue.

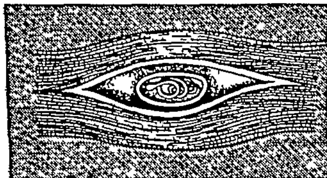
fæces and education in hygiene Children and field workers should wear shoes in areas where the soil is known to be contaminated.

*Trichinosis*

Trichinosis is a troublesome disease which is transmitted by inadequately cooked meat It is a serious public health problem in areas where large quantities of meat are consumed This particular parasite infects many different animals, but the chief source of human infection is pork. Pigs that are fed on uncooked garbage readily become infected Ten per cent of the sausage meat sold in large city markets *is said to be infected with trichinosis In some areas one person in* every six of the human population has trichinosis

Soon after the infected meat is eaten, the human intestine is invaded by the adult parasite Eggs are produced in great numbers from which the young larvæ form and enter the blood stream. They pass through the walls of the capillaries, penetrate between the muscle fibres, and form cysts which later calcify in the fibres of the larger muscles, such as the diaphragm, gluteus, pectoral, deltoid, and other *muscles of the legs and chest.*

If the meat is heavily infected, the patient may feel local irritation of the digestive organs followed by nausea, vomiting, and diarrhœa similar to food poisoning After another week, the large muscles become painful and stiff, and the patient may complain of some weakness, fever, backache, pains on chewing and swallowing and some difficulty in breathing or even in moving his eyes or



Enlarged view of trichina cyst. Trichinosis comes from eating improperly coked pork.

limbs—a clinical picture not unlike the early stages of influenza. There is often puffiness around the eyes, as well as headache and disturbances of vision

Unfortunately we have no specific treatment for this disease No drugs have proved of any real value after the parasites have begun invading the muscles The damage is already done. Muscular pains may last for years at a time, and a vague aching in various parts of the body may continue to plague the patient from time to time. Trichina worms can be killed by thorough cooking, but other methods of food processing, such as smoking and pickling, do not kill the parasites The risk is great, particularly in those who eat incompletely cooked pork or various types of sausage meat that may contain these parasites This is one disease which lifelong vegetarians never contract!

*Tapeworm Infections*

More than thirty different types of tapeworm infections may affect the human body Some tapeworms are only a few inches long, others measure from ten to thirty feet or more in length The **beef tapeworm** when fully grown measures fifteen to twenty feet in length Cattle may develop the disease by grazing on grass contaminated with human wastes and thus pick up the eggs of these parasites. Humans contract the disease by eating incompletely cooked meat from such animals

**Pork tapeworms** measure six to ten feet in length Man becomes infected by eating inadequately cooked pork **Fish tapeworms,** the largest of all, may measure up to thirty feet in length Female worms

may produce as many as a million eggs a day These are discharged through the human bowel, and when they enter fresh water they hatch and are eaten by water fleas Fresh water fish then eat the infected water fleas, and the fish tapeworm parasites finally lodge in the muscles of the fish When humans eat fish raw or insufficiently cooked, the parasites are released in the human intestine, and fully mature ones develop in five to six weeks.

There are other types of tapeworm infection such as the dwarf tapeworm, rat tapeworm, and dog tapeworm These are less common The treatment is similar

The clinical picture varies considerably depending on how many worms are present in the bowel Tapeworms may be harboured for years without causing much trouble except passage of segments of the worm through the rectum Some patients complain of hunger pain which is sharp and stabbing but quickly relieved by food There may be some anæmia which quickly clears up when the worms are expelled

**Treatment** Atabrine or quinacrine hydrochloride is the drug of choice for use against all tapeworms The patient should be on a liquid diet the day preceding treatment, and the evening meal should be omitted Water may be given freely A soapsuds enema should be given in the evening Next day the patient should remain in bed Breakfast is omitted Five tablets of atabrine or quinacrine hydrochloride is the dose for adults It should be taken on an empty stomach with half a teaspoon of sodium bicarbonate in a glass of water Children weighing forty to eighty pounds should be given half this dose Those from eighty to one hundred pounds should be given four tablets rather than five.

**Prevention** is important as in all other types of infestation All animal foods such as pork, beef, and fish, if eaten at all, should be **thoroughly cooked** Care should be taken to provide sanitary disposal of human wastes and also to protect food against contamination by man mice, or rats Dogs and cats should be kept free of fleas and lice to prevent the danger of tapeworms both in the animals and in children who play with them

### *Fluke Infections*

Fluke infections are very common all through the Orient and in many other parts of the world, particularly in warm areas with a

good rainfall There are several different varieties, all of which find their way into the human system through **infected food or water** They all live mainly within the digestive organs passing their eggs in thousands every day When these eggs reach a stream of water they soon hatch and then enter some other creature, to spend part of their life cycle there

**Intestinal flukes** usually penetrate the body of a snail, pass through an elaborate cycle, and then leave it to locate on certain water plants When these plants are eaten they serve as a source of human infection Large numbers of intestinal flukes may be present on the outer layers of certain water nuts When the nuts are eaten raw or when they are peeled with the teeth, the tiny flukes are swallowed and within three months develop into adult worms These attach themselves to the lining of the upper intestine and feed upon the partially digested food materials that pass through the intestinal tract. At the same time, they cause erosion of the bowel lining, resulting in **bleeding and pain,** often followed by severe diarrhoea, nausea, and vomiting, alternating with periods of constipation

Heavily infected patients may harbour several thousand worms at a time, and death may occur due to absorption of toxic materials produced by the parasites The diagnosis is made by a study of the patient s stools

**Treatment** "Crystoids' anthelmintic or Hexylresorcinol are effective in treating intestinal flukes A light liquid meal is taken the night before. Then on the morning of treatment no food is given, and none should be taken for four hours after the administration of medicine The dose for adults and children over twelve is ten pills swallowed with a glass of water Children from eight to twelve should be given eight pills, those from six to eight years, six pills, and those under six years one pill for each year of age

**Prevention** Thorough cooking of all vegetables that have in any way been exposed to infection is important. Protecting streams from contamination will also help In some cases it would be well to give a second course of treatment several weeks after the first

*Liver Flukes*

Liver fluke disease is very widespread through the Far East and also occurs in some other parts of the world The disease

is common in dogs and cats in these areas, but it only occurs in humans who eat **raw fish**, or fish that has been pickled or smoked. These tiny flat worms are found within the bile ducts of the liver, feeding upon its secretions. Liver flukes may live as long as twenty five years! Eggs passed from these worms find their way down the bile duct into the intestinal tract, where they are passed with the stools As in the case of intestinal flukes mentioned above, certain snails form the intermediary stage of these flukes, and man becomes infected from eating raw or partially cooked fish

Thousands of these tiny worms may be found in the liver of an infected person The usual complaints are indigestion, pains in the upper abdomen, gas, and nausea *The liver is enlarged and tender*, and there may be a slight tendency to jaundice because many small bile ducts become blocked For further discussion of jaundice, see pages 383, 384

**Treatment** is not very satisfactory for this type of infection Gentian violet tablets are helpful in curing light infections and reducing the number of worms In more chronic infections the adult dose is one tablet three times a day for thirty days. The course should be repeated every two months as needed Chloroquine, 0.5 grams, three times a day for two or three weeks, may reduce the number of eggs found in the stools Most important is **prevention** All fresh water fish should be thoroughly cooked before being eaten, especially in areas where these flukes are known to be present

### *Lung Fluke Disease*

This infection is widespread in the Orient, especially in Japan, Taiwan, Korea China, the Philippines, and through Indonesia It also occurs in Africa and South America.

Like other flukes previously mentioned, these eggs develop in fresh water, enter a suitable species of snail where they grow and multiply, then emerge and enter the soft tissues of fresh water crabs and crayfish Men and domestic animals, such as dogs and cats, acquire the infection from eating **uncooked** crabs and crayfish or from drinking water which contains the cysts.

Once these parasites enter the digestive tract of man they migrate through the intestinal wall, burrow through the diaphragm, and enter the lungs where they develop into mature lung flukes, forming cysts containing one or more worms. Some of these cysts may develop

ulcerations resembling tuberculous lesions Other organs, such as the liver, spleen, lymph nodes, heart, and brain, may also be involved

Most lung fluke patients have a **chronic cough** which is more pronounced in the early morning In heavy infections, the sputum is blood-stained and there may be chest pain with pleurisy, shortness of breath, fever, and lack of appetite Many of these patients suffer from anæmia to a moderate degree. When the brain and central nervous system are involved, the patient may suffer from epilepsy due to the presence of the flukes

Lung fluke disease, also known as *paragonimiasis* may be difficult to distinguish from tuberculosis In fact, both diseases may be present in the same patient. Lung flukes live approximately six years, so that if the patient is not reinfected, or the disease is not complicated by tuberculosis or some other serious condition, it gradually dies out.

**Treatment** Unfortunately there is no specific remedy Emetine hydrochloride, 65 mg given intramuscularly daily for twelve days will reduce the egg production of the worms Sulpha drugs may also have some value Chloroquine has been tried with some success, but serious infections of the brain can be cured only by surgery

**Prevention** Be sure to thoroughly cook all sea foods and fresh water foods, such as crabs and crayfish before eating Salting, pickling, or soaking in rice wine is not sufficient to kill this parasite Proper disposal of human wastes is also important. *All drinking water should be boiled* to prevent accidental infection

*Schistosomiasis*

Schistosomiasis or bilharziasis, is a chronic disease caused by certain flukes or flatworms that live in various parts of the blood stream There are three major types, known as *mansoni*, *japonicum*, and *hæmatobium* Next to malaria, schistosomiasis is man s most serious parasitic infection More than 150,000 000 people are infected with this disease It is widely distributed in Egypt, Africa, Madagascar, Arabia the West Indies North and South America, Central and South China Japan Philippines, Celebes, the Middle East, Portugal and near Bombay, India

The adult worms may live up to twenty five years, pouring out thousands of eggs every day, first of all into the blood stream of the infected person. From there they find their way into either the intes-

tine or the urinary bladder and are evacuated from the body On contact with fresh water the larval form hatches from the egg, swims about until it finds an appropriate snail which it penetrates. It lives there, passes through two generations, and then leaves the body of the snail as a small, free-swimming creature ready to penetrate the next human who happens to be in the contaminated water

As soon as the parasite contacts human skin, it burrows down and enters the capillaries where it is carried to the heart and lungs People who drink the **contaminated water** are even more quickly infected Most of the parasites are destroyed by the body's defence mechanism, but enough of these flatworms survive to find their way to the blood vessels leading to the lungs. Here they grow rapidly and are mature worms about three weeks from the time they enter the body

The presence of the parasites produces **marked itching**, swelling **asthmatic attacks**, and tenderness of the liver probably due to **hepatitis** This may be followed by fever, sweating diarrhœa, dysentery, weight loss and lack of appetite Chronic inflammatory changes appear in various parts of the body with **abscesses** and **ulceration** Eggs from the flukes may become embedded in the appendix and produce appendicitis

Multiple small abscesses may develop in the liver, eventually producing **cirrhosis**, especially with the **japonicum** infection Head ache diarrhœa, and abdominal pain are common, and the patient has relapses which may continue for years *Various nervous disorders* may arise because of the eggs passing through the general circulation and filtering out into the brain and spinal cord

The patient may be disoriented, suffer from *forgetfulness* and *lack of speech*, and may become confused He may even have **epileptic attacks** *at times, depending on which part of the brain may be* involved Patients with severe *infections of the lungs are likely to suffer* from shortness of breath, pneumonia, and heart failure

**Bladder flukes** cause intense inflammation of the bladder, with ulceration and the developing of **small tumours**. *Eggs from the parasites* in this area become surrounded by crystals of uric acid phosphates, and calcium, forming **bladder stones** This adds to the irritation, especially in *patients who are heavily infected* with the disease. The first sign of trouble may be slight, **blood tinged urine** followed by mucus and pus There may be a daily elevation of temperature with sweating,

and dull pain over the bladder Chronic blood loss leads to anæmia and emaciation, followed by exhaustion and further infection

In Egypt where the **hæmatobium** infection is very prevalent, **cancer of the bladder** is also common probably because of the chronic irritation. Bladder cancers in that country appear most frequently during adolescence and early adult years Bladder stones are very common, probably because eggs from the parasites form a focus around which uric acid and other chemicals can crystallize

**Treatment** should be under direction of your doctor Antimony compounds are recommended The dosage is 1.5 cc given intra muscularly the first day, 3.5 cc the second day, then 5 cc every other day until a total of 40 cc has been injected In children the dosage should be reduced according to size and age, but each child should have a total of 25 cc Local public health centres may also recommend the use of sodium antimony tartrate by mouth in relatively small doses

For bladder flukes Miracil D or Nilodin, administered orally, has been used with considerable success These act upon the reproductive organs of the parasites, reducing the number of eggs, but un fortunately they do not remove the parasites themselves Antibiotic medicines are often necessary for the control of germ infections fol lowing the presence of parasites

**Prevention** Sanitary disposal of all human fæces and urine is essential for the control of schistosomiasis Unfortunately, in many lands human fertilizer is used, and the possibilities of constant con tamination are only too obvious In some countries a further compli cation arises due to the religious practice of ablution at various times of the day This serious disease cannot be eradicated until populations are educated to use sanitary toilet facilities and to avoid contact with infected water Safe facilities for bathing and washing of clothes must be provided Some day we may have a chemical agent capable of bringing this serious disease under control Until then proper hygienic measures are essential to all who value their own health and that of their loved ones

### *Amœbic Infections*

**Amœbiasis** is a disease caused by a certain organism known as *Endamœba histolytica* It affects mainly the colon, but may also ex tend to the liver and other organs **Amœbic dysentery** is the term applied to severe cases in which there is diarrhœa with blood and



Amœbic infections usually occur because the water supply is contaminated. Be sure that your drinking water is safe

mucus in the stools The disease usually occurs in epidemics due to contaminated drinking water

The parasite passes through two phases, the active or *trophozoite* phase, and the *cyst* Active parasites are responsible for changes in the tissues and organs Later they change into the cyst form, which are largely responsible for the transmission of the disease.

Unlike many other intestinal parasites, amœbic infections are not limited to the tropics, but are found in every country in the world However, they are more prevalent in the warmer areas, especially where sanitation is poor In areas devoid of proper sanitary facilities, more than half the population may have the disease

Infection usually occurs because the water supply is contaminated with human sewage containing amœbic cysts Various foods may be contaminated by being fertilized with **human sewage** or by **flies** exposed to the infection, or by **careless food handlers** who have the disease Children may infect themselves by playing in soil contaminated with amœbic cysts One of the worst outbreaks occurred in 1933 in Chicago, Illinois (U S.A ), because of **faulty plumbing** Someone accidentally connected a sewage pipe with a water main! There were 1,400 cases and more than 100 deaths before the epidemic was brought under control

In severely infected cases, patients complain of **abdominal cramps, diarrhœa,** and **bloody mucoid stools,** similar to that seen in other forms of dysentery Milder infections may only have rather vague symptoms, such as gastro-intestinal disturbances with occasional, loose, watery stools and some distension of the abdomen. Vomiting is not common and abdominal pain may be mild Some people are 'carriers in that although not suffering from the condition themselves, they constitute a source of infection to others A few patients notice undue fatigue, fever, vague aching in the muscles, backache, arthritis nervousness irritability, and even dizziness at times **Liver abscess** is the most serious complication due to amœbic infection The patient complains of pain over the liver, fever, loss of weight, and sweating If the liver abscess is located at the top of the liver, it may penetrate into the chest, forming a more serious condition known as pulmonary abscess.

Diagnosis is not always easy in cases of diarrhœa A study of the stools should always be done, preferably using fresh specimens The complement fixation reaction is of some value in making the diagnosis.

**Treatment** In the severe amœbic infection, emetine hydrochloride, 1 0 cc is given intramuscularly each day for six days This should be taken only under close medical supervision It should be followed by sulphasuxidine 1 0 gm, four times a day by mouth, and penicillin 500 000 units intramuscularly each day for several days *This can be followed by* **Diodoquine,** *one tablet four times a day,* for the next three weeks If desired, Carbarsone, 0 25 gm tablets three times a day for ten days, may then be used.

If there is only moderate diarrhœa and no fever the emetine is omitted, but the penicillin and sulphasuxidine are given, followed by the course of Diodoquine and Carbarsone. If the patient is suspected of having a liver abscess, chloroquine (Aralen) is used, the dose being one tablet three times a day for two weeks Glycobiarsol is often used in combination with chloroquin in such preparations as Biarsenate with chloroquin or chlorambin Oxytetracyclin also has antiamœbic activity and is particularly useful in small children Paromomycin (Humatin), recently developed, is also very effective. A large liver abscess may have to be drained surgically

**Prevention** Unfortunately, ordinary chlorination of water can not be relied upon to kill amœbic cysts, but chlorination plus proper filtration seem to be effective. When in doubt, boil all drinking water, for this will kill not only the amœbic cysts, but any other organisms present. *Sanitary disposal of human sewage and avoiding its use for* garden fertilization will greatly lower the incidence of this disease. Proper control of flies and thorough treatment of all cases including *food handlers, will usually bring this disease under control*

# TROPICAL DISEASES

Most diseases affecting mankind are found in all parts of the world, there being little difference in the way they affect the human body But some diseases occur more frequently in hot, moist climates. These are the so called tropical diseases, many of which may also occur in subtropical areas, but usually less frequently Most of these are transmitted by germs or viruses but some are carried from one person to another and injected into the human body by the bites of mosquitoes, ticks, ants, spiders, rats, and many other creatures For easy classification, we are including all of these in this chapter

### *Malaria*

Malaria is one of the most widespread diseases in the world Hundreds of millions of people are affected by malaria, of which there are three main types *vivax falciparum* and *malariæ* Commonly these are called benign tertian, malignant tertian and quartan respectively A fourth one, known as *ovale* is so rarely seen that it is regarded more or less as a curiosity

One of humanity's greatest scourges, malaria renders many fertile areas of the world virtually uninhabitable It is transmitted by the *anopheles mosquito* When the female of this particular species bites a patient who has malaria she draws up a small quantity of blood containing the parasites These parasites then pass through several stages of development within the mosquito s body, and finally find their way to its salivary glands. There they lie in wait for an opportunity to enter the blood stream of the next individual the mosquito bites

About ten days after the mosquito has injected these parasites into a person s blood stream, many more parasites can be seen under a microscope Most of them are now within the red blood cells of the victim There they grow until they eventually replace all the hæmoglobin within the cell Although probably only one parasite

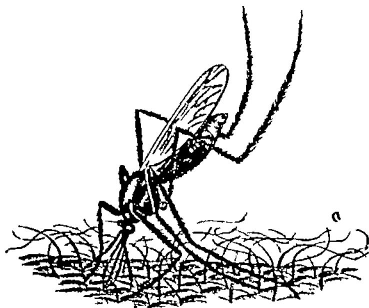
attacks any one cell, each continues to multiply until there may be sixteen within each cell. As the cell breaks up, these are released. Each tiny parasite then attacks another red cell, thus repeating the cycle every two or three days.

Many of the parasites are destroyed by the defence system of the body, particularly by the white blood cells in the spleen, liver, and bone marrow. But enough of them survive to cause plenty of trouble, as every patient with malaria will testify. Not all strains of malaria parasites are the same. In some parts of the world certain medicines will quickly destroy the parasites, while the same medicines seem to be far less effective in other areas.

**Typical Attack.** During an acute attack of malaria, the patient complains of fever, weakness, headache, and chilling sensations similar to those experienced in an attack of influenza. In more severe cases, the attack begins abruptly with shaking chills, fever, and sweating. Between these paroxysms, the patient usually feels miserable and runs a low grade fever. The temperature may run to 104° F., and the patient may complain of severe headache, and may manifest drowsiness, delirium, and confusion. This is particularly true of the falciparum type, which is the most serious form of malaria. *Blackwater fever* rarely occurs, but when it does, it usually involves patients who have been treated with quinine or pamaquine. With this serious complication the patient suffers from jaundice, anæmia, severe prostration, and shock. But in most cases there is little to fear, for these complications rarely occur.

**Treatment:** Among the best medicines for treating malaria are the newer anti-malarial drugs, particularly chloroquine or amodiaquine. The usual dosage for chloroquine is 1.0 gm. to start with followed by 0.5 gm. in six hours, then 0.5 gm. daily for two more days. For the falciparum type of malaria continue with this dosage for nine days. Amodiaquine dosage is as follows: 0.6 gm. the first day, and 0.4 gm. daily for two more days. Severely ill patients and those who are vomiting or in a coma, may have to be given medicine by vein along with sterile glucose and saline solution. Vivax malaria is more difficult to cure, and relapses occur more frequently. But eventually the disease 'burns itself out.' Primaquine is useful in wiping out the persistent parasites that remain in the blood even after the fever has subsided, the dosage being 15 mg. daily for fourteen days.

Good nursing care is always essential in acute attacks of malaria.




The malaria germ is carried by the anopheles mosquito When biting, this mosquito assumes the position shown in the drawing.

As far as possible, the patient should be given plenty of fluids, fresh fruit juices, and a balanced diet. To keep malaria under control, give one tablet of chloroquine each week as long as he remains in the area where anopheles mosquitoes and patients with malaria are known to live. Proper drainage of marshes and swamps, as well as adequate treatment of all known patients will go a long way toward keeping this disease under control. A personal precaution that all should take is to sleep under a mosquito net Children s beds should especially be screened by nets.

### *Dengue Fever*

Dengue fever is another common disease of the tropics It usually begins suddenly with a severe headache, fever, prostration, pains in the joints and muscles There is severe aching in the lower extremities and the larger joints, such as the knees. Hence the name *breakbone* fever Dengue is caused by a filtrable virus transmitted by the bite of the *Aedes ægypti* mosquito During an acute attack the patient experiences severe pain when moving his eyeballs. The



The anxiety and suffering caused by disease should motivate us to take every precaution possible to prevent infections.

fever rises rapidly to 102 or 104° F It may last for two to four days, to be followed by a rapid recovery for about twenty four hours, after which may come a second rise in temperature. At this time a rash may appear on the skin

**Treatment** Keep the patient in bed, give him plenty of fluids, and apply an ice bag to his head One or two aspirin tablets every two to three hours will help to control the fever and pain Keep mosquitoes away from the patient as a precaution against spread of the disease.

### *Yellow Fever*

Yellow fever is a serious tropical infection found principally in the hot, moist tropical areas of Africa and certain parts of Central and South America It is caused by a filtrable virus which is transmitted by the bite of the female *Aedes ægypti* mosquito The disease is referred to as yellow fever because many of the liver cells are damaged or destroyed, causing *jaundice* or a yellow discoloration of the skin, due to the presence of bile

Most attacks of yellow fever are mild today compared with those recorded in previous generations The disease begins with a sudden onset of fever, the temperature going to 102 or 103° F, associated with chills The face is flushed, the eyeballs are reddened, the gums congested, and the tongue red and sore The upper abdomen is tender and muscles particularly the calves of the legs are painful This condition may be followed by severe prostration, headache, restlessness and irritability

After about four days the virus attacks the cells of the liver, and jaundice develops Small hæmorrhages occur in the mucous membranes, and there is bleeding from the gums During the fever the patient is mentally dull confused and apathetic. This condition is not unlike some cases of malaria relapsing fever, influenza, and dengue, and the disease must be carefully distinguished from these other types of fever In severe epidemics four out of five patients with yellow fever may die

**Control** Governments in most tropical areas are taking great precautions to prevent the spread of this disease by travellers Those who have to travel to known yellow fever areas must be **vaccinated** against the disease

**Treatment** Unfortunately, there is no specific treatment for yellow fever Proper cooling measures, including the use of cold, moist packs, ice bags, or electric fans, will help to lower the fever Severely ill patients should be treated in hospital where glucose and saline can be given intravenously

### *Relapsing Fever*

Relapsing fever, otherwise known as tick fever, is an acute infectious disease transmitted by lice and ticks It usually begins suddenly with a severe headache, vomiting, muscle and joint pains, followed by weakness and fever The fever usually remains high for several days, then subsides suddenly The patient may have some jaundice, as well as tenderness over the spleen and liver due to the involvement of these organs

**Treatment** During the acute stage, keep the patient in bed Good nursing care is most important. Nausea and vomiting may be controlled by injections of Dramamine, or similar medications. Injections of penicillin should be given during the first few days, but should be withheld later The adult dosage is 600,000 units intramuscularly each day for three to five days. Other antibiotics, such as Achromycin, may be used the dose being 250 mg three times a day, taken after meals.

### *Infectious Jaundice*

Infectious jaundice, or Weil's disease, is caused by a parasite carried by rats The infection is acquired through food, water and other materials contaminated by rats. The disease is seen most frequently in miners and wharfmen, and in people who live or work where sanitation is poor

The patient usually complains of chills, fever, headache, vomiting and muscle pain The temperature may rise to 104° F for several days and then decline to normal Jaundice appears by the fifth day Many patients may have albumin, red cells, and bile in their urine. Those who do not develop jaundice almost always recover Among those who do have jaundice the mortality rate is low, except in Japan where for some reason there are many more deaths

**Prevention** As far as possible, all rats should be exterminated

Human beings exposed to water in drainage ditches, sewers, and mines always run a great risk Unfortunately, there is as yet no effective vaccination against this disease

**Treatment** Good nursing care is important, particularly if there is evidence of jaundice or kidney disease A reasonable amount of fluids should be given, but the kidneys must not be overloaded Follow the dietary suggestions outlined for Infectious Hepatitis on page 328 Keep the patient in bed as long as he has a fever Penicillin and other antibiotics are useful in treating pneumonia and other conditions that are often associated with infectious jaundice, but unfortunately these valuable medicines have little or no effect upon the spirochetes that cause the disease If penicillin is used, the dosage is 4,000 000 units a day Tetracycline, 2 gm a day, may be given if the patient is allergic to penicillin

## *Typhus and Spotted Fever*

Typhus and spotted fever are caused by tiny organisms known as rickettsias They are transmitted to man from animals Typhus is spread through lice and fleas. Rocky Mountain spotted fever is spread by wood ticks South American spotted fever is transmitted by dog ticks The same is true of Mediterranean fever Q Fever, another rickettsial disease, is spread by ticks from cattle, sheep, and goats Tsutsugamushi disease which is seen particularly in eastern Asia and the Pacific areas, is spread by mites and chiggers Another name for this disease is scrub typhus or Japanese river fever

Because these diseases are all similar in many respects, they are discussed as a group In most cases the patient feels an abrupt onset of chills, headache, fever, and weakness There may be pains in the back and legs for several days prior to the onset of fever The temperature usually remains elevated for at least two weeks before returning to normal Heart action is slow The patient feels apathetic and has no desire for food

Usually there is a rash within the first day or two In spotted fever the rash usually begins on the extremities and extends to the trunk In typhus the rash begins on the chest and back. In severe cases the skin is hot and red, and the patient is delirious and may even suffer from some convulsions Pneumonia may develop and

breathing may be rather difficult Special diagnostic tests, such as the Weil Felix reaction, may be needed to identify the disease.

**Treatment** Keep the patient in bed as long as he has any fever Give him small, frequent feedings Be sure he has adequate fluids The high fever may be reduced by cooling measures, as recommended on page 506 Because of the fever and sweating the patient should be given extra salt, particularly in *hot climates* Severely ill patients are best treated in hospital where oxygen is available This is particularly important if the patient has pneumonia or heart trouble

One or two aspirin tablets every three hours may help to keep the fever down and to make the patient more comfortable Terramycin and other broad spectrum antibiotics are valuable in this disease The patient should have two capsules every six hours for the first three days, and then one capsule every six hours for the next week Keep him in bed until the temperature has been normal for at least three days

## *Filariasis*

The term *filariasis* represents a group of similar diseases occurring in certain tropical and subtropical areas of the world Tiny worms within the lymphatic system and the connective tissues of the body are responsible for this condition These microscopic worms may also be found in the circulating blood at night Infection is spread through several species of **mosquitoes** As in the case of malaria, the mosquito first becomes infected with the parasites by biting a person who already has the disease. The parasites mature within the body of the mosquito, and later migrate to the mouth parts of the insect Then when the mosquito bites another person, some of these microscopic worms find their way into the blood stream and finally locate in his body tissues There, as adult worms they obstruct the lymphatic circulation and cause considerable inflammation and scarring

It takes about eight months from the time the young worms enter the victim s body before the disease is fully manifest Swellings and redness of the tissues, particularly along the lymphatic channels, are common in this disease The patient complains of chills, fever, headache and weakness **Elephantiasis** occurs when there are exceedingly large swellings in the tissues In men the scrotum may become enormously enlarged Elephantiasis only seems to occur in those who



Filariasis is caused by a tiny worm which invades the lymphatic system and connective tissues.

live a long time in the endemic area and who are repeatedly exposed to the infection

**Treatment** Unfortunately there is still no specific treatment for filariasis If possible, the patient should move to a cooler climate. Diethylcarbamazine can be given three times a day although it may not alter the course of the disease very much Very large swellings can sometimes be removed by surgery Swellings in the lower ex tremities can be treated by elevating the involved leg and using an elastic bandage The major types of filariasis are these

**Loiasis or "calabar" swellings** This form of filariasis is found in West Africa and is transmitted by the bite of the Chrysops fly In this particular disease, adult worms migrate under the skin, causing localized swellings At times they may even migrate across the eyeball under the conjunctiva, causing pain and discomfort to the patient This form of filariasis responds well to diethylcarbamazine, the dose being 100 mg after breakfast on the first and second day, 300 mg on the third day, 400 mg daily until the tenth day

**Guinea worm** (Dracunculiasis) is a type of filariasis found widely in India, the Middle East, tropical Africa, and certain parts of the West Indies. It is also known as the "fiery serpent." The female worm tunnels under the skin, especially in the legs and feet, causing blisters which later ulcerate. *When the ulcer comes in contact with water* the worm in the wound discharges large numbers of immature larval forms which are eaten by microscopic "water fleas" known as Cyclops. People drinking the infected water naturally acquire the infection. Many of the victims complain of itching, nausea, vomiting, diarrhœa, shortness of breath, and dizziness. These symptoms are probably due to an allergic reaction caused by the toxins or poisons put out by the worm. Cellulitis develops around the abscessed area of the skin.

**Treatment.** Some people suffering from guinea worm often manage to extract the entire worm (which grows to three feet in length) *by winding it on a stick. It usually takes about two weeks* to do this. These worms may also be removed by surgery.

The simple expedient of straining the drinking water through a fine mesh cloth such as muslin usually keeps one from getting these parasites. Boiled drinking water is free from *all* disease carriers of every kind.

*Leishmaniasis*

This is a group of conditions resulting from sandfly bites. There are three major kinds: **Kala-azar, Oriental sore,** and **Espundia.**

**Kala azar** is primarily a disease of children. It is found in many areas of the world, particularly in India, China, Africa, the Mediterranean area, and tropical South America. The disease is transmitted by sandfly bites. Through these bites the parasites invade the blood stream, *producing marked enlargement of the spleen and liver,* as well as anæmia and general emaciation. Many patients complain of chills, sweating, dizziness, headache, as well as vague pains in the muscles, bones, and joints, *soreness in the eyes, bleeding from the* nose and gums, and distension of the abdomen.

**Treatment.** Bed rest is important during the acute stage of the disease. The patient should be given a good diet, *and if he is very* anæmic he may need several blood transfusions. Special care should be taken to keep the mouth and gums clean. Severely ill patients may need penicillin to combat side reactions due to *bacterial infec-*

tions Ethylstibamine (Neostibosan) has proved useful in most areas. The first dose is 0 2 gm given in a 5 per cent solution in distilled water, followed by 0 3 gm daily until the total dosage of 5 grams is given over a period of about two and a half weeks If nausea and vomiting occur the drug should be given on alternate days using a slightly smaller dosage Really sick patients should be under the care of the family physican who can watch for any toxic reactions

**Prevention** Cracks and dark corners in walls and floors should be sprayed with DDT to keep down the sandflies Rubbish and vegetation in and around the house should be eliminated

**Oriental sore.** This form of leishmaniasis is seen in India, China, the Middle East, the Mediterranean area, and tropical Africa The parasites are carried by sandflies Several ulcers may occur on exposed areas, especially the face, ears, neck, backs of the hands, and forearms There may first be a small red spot with intense itching Later, a scab forms over the area, followed by the development of an ulcer, with clear cut margins that bleed easily and heal slowly It usually takes a year or more to clear up this condition. Antibiotics are useful in cutting down bacterial infections around the ulcers Quinacrine hydrochloride, 10 per cent solution may be injected locally around the ulcer Neostam is also useful and worth trying

## *Sleeping Sickness*

African sleeping sickness is a chronic disorder arising from the invasion of the body by certain parasites carried by the tsetse fly *(Glossina)* The South American form of sleeping sickness is known as Chagas disease These parasites are similar to the African type, but are carried by the barbeiro or assassin bug The disease in either case is called **Trypanosomiasis.** Patients complain of fever swellings in the lymph glands and skin irritation This is followed by tremors, headache, listlessness convulsions, and eventually coma and death

Rhodesian trypanosomiasis is more severe and more fatal than the Gambian type. Chagas disease or South American sleeping sickness, is more likely to occur in young children If the disease is severe, they develop fits or convulsive seizures Milder forms of the disease cause little trouble In some cases the heart may be involved, as well as the brain and the central nervous system These are always more serious

**Prevention** In the African type of sleeping sickness, tsetse flies

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**Treatment** Bed rest is important during the acute stage of the disease The patient should be given a good diet and if he is very anæmic he may need several blood transfusions Special care should be taken to keep the mouth and gums clean Severely ill patients may need penicillin to combat side reactions due to bacterial infec-

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must be avoided or excluded from the environment of the family Further protection may be obtained by injecting one gramme of suramin (Antrypol) every two to three months Pentamidine may be given by injection every six months, the dose varying according to the patient s weight A person weighing 150 pounds would need 200 mg In Chagas disease, bed bugs and other vermin that inhabit poorly constructed houses and outbuildings should be excluded by frequent spraying with gammexane (BHC) Dwellings should be made insect proof to prevent the insects from returning

**Treatment** No one should begin treatment for sleeping sickness until the diagnosis has been confirmed by laboratory studies on the blood The drugs are so potent that there is some risk in using them. Unfortunately, Chagas disease does not seem to respond well to any drug, although primaquine may be of value, 15 mg taken by mouth twice a day for five days, and then 15 mg daily for the next ten days

For African sleeping sickness, suramin sodium should be injected intravenously or intramuscularly The first dose is 300 mg in 10 cc of distilled water, followed by 1 0 gm every four days for the next six weeks If desired, pentamidine may be given by intramuscular injection the dose being 2 mg per pound of body weight. This should be mixed with 3 cc of sterile water and injected deep in the muscle for a total of ten injections

In more serious cases where the brain has been penetrated by the parasites, tryparsamide is given by intramuscular injections dissolved in 10 cc of distilled water These injections are given once a week for fifteen weeks, the first dose being 1 0 gm and after that 2 to 3 gm. per dose Still another medication, Mel B may be tried This drug contains arsenic It should be given intravenously each day, 2.5 cc. daily for three days Then after a week s rest, the daily dose is 3 cc first day, 4 cc second day and 5 cc third day After another week s rest, three daily injections of 5 cc. each are given in the hope of killing the parasites All infected animals should be destroyed, otherwise the human population will not be safe

### *Yaws*

Yaws or framboesia is a tropical disease mainly affecting children. It is transmitted through discharges from skin ulcers, as well as by

body contact, infected clothing, and also by insects This is not a venereal disease, although in some respects it is similar to syphilis

The first sign of trouble is the 'mother yaw, which consists of one or two red, pimple-size swellings which ulcerate A generalized skin rash may then develop some time within the next two or three months The patient complains of fever, headache, weakness, and sore joints Unless properly treated, the last stage of the disease may result in crippling disfiguration of the feet ( crab yaws ) and also some destruction of the bones Blood tests for this disease are positive, similar to that of syphilis

**Treatment** The drug of choice is **penicillin** The patient should be given daily injections 600 000 units per day for a week. In children the dosage may be lowered but there is no harm in giving the adult dose, provided the child is not allergic to the drug If the patient is sensitive to penicillin, try the tetracyclines, such as Terramycin, the dosage being three tablets a day for seven days For advanced cases, neoarsphenamine injections may be given, the dose ranging from 600 mg to 900 mg given intravenously once a week for six weeks If the blood test still shows strongly positive, a second course of treatment would be advisable after a few week s rest Great care must be taken not to give inadequate treatment Good nursing care is essential in this disease, and the patient should be given the benefit of a balanced diet

## *Typhoid and Paratyphoid Fever*

Although typhoid and paratyphoid fevers are more common in warm tropical areas both of these diseases may occur in other parts of the world Persons contract typhoid fever from patients who have the disease, or from carriers."

Poor sanitation is most often responsible, contaminated water being the usual source of infection The next most frequent cause is infected milk These sources are likely to be found in cities as well as in rural areas Other foods may also be responsible Sometimes certain people known as carriers, may spread the disease Many of them are food handlers. In a few cases flies may bring the germs into the house and contaminate the food Germs enter the body through the mouth causing irritation and ulceration of the lower small bowel (Peyer s patches)

It usually takes from ten days to two weeks for the disease to develop The patient feels chilly tired, and weak, has a headache and loss of appetite, followed by nosebleeding, backache, and either diarrhœa or constipation Many of these patients also have bronchitis, so that in the early stages of typhoid the disease may appear as pneumonia The temperature rises and remains high for about ten days to two weeks then slowly comes down to normal by the end of the fourth week

In untreated cases the pulse rate is slow, and there may be rose coloured spots on the abdomen During the second week the patient may become delirious and stuporous Serious complications include severe sore throat, nausea and vomiting abdominal pain, pneumonia, kidney disease and inflammation of the nervous system There may be severe bleeding from the intestines and even perforation through one of Peyer s patches At times the heart may also be involved This slows recovery

**Diagnosis** is very important This disease resembles others for which an entirely different treatment may be needed During the first week typhoid germs are found in the blood stream At the end of the third week the germs are also found in the urine The Widal Agglutination is a useful laboratory test which becomes positive during the second week of the disease.

**Prevention** Make sure all drinking water is either boiled or thoroughly purified Milk should be pasteurized or boiled People who handle food should be carefully screened to be sure they are not carrying the germs of typhoid or paratyphoid People travelling abroad should be given the **triple vaccine** for protection against typhoid fever The dosage for an adult is 0 5 cc the first week, 1 0 cc the second, and 1 0 cc the third week *This should be given just* under the skin A booster shot every year is also advised in areas where the disease is endemic.

**Treatment** Chloramphenicol (Chloromycetin) is the best drug The adult dose is one 250 mg capsule four times a day after meals and at bedtime Young children should be given 100 mg after meals and at bedtime The medicine should be taken for two or three weeks, according to the condition of the patient Good nursing care is highly important in this disease. *All members of the family should* be given the **vaccine** to minimize any further spread of the infection The patient should also be given plenty of fluids and a light general




It is highly important that those preparing food be scrupulously clean. Diseases such as typhoid fever and dysentery are often contracted because of lack of cleanliness on someone's part.

diet without any roughage or spices Many physicians recommend a diet consisting entirely of liquids, milk, conjee, soup, fruit juice, given in 8 ounce amounts every two hours This diet should continue for one week after fever has disappeared and then the patient should gradually return to a general diet over a period of several days. The mouth and teeth should be kept clean

If the mouth is dry, give the patient chewing gum to encourage the flow of saliva. The skin should be kept clean and dry, and the patient given cooling sponges two or three times a day to reduce the fever He should be turned frequently from side to side, and also given active leg and arm exercises to prevent complications in the veins Severely ill patients will benefit from injections of ACTH or cortisone. Patients complaining of headaches should be given the benefit of an ice pack (See page 100 )

Be careful in using aspirin because of complications that may follow For severe pain give one 5 gr tablet with milk every few hours If diarrhœa is troublesome, try paregoric, one teaspoonful every two hours or some simple medication, such as Pectokab, until the diarrhœa is controlled Severely ill patients should be kept in bed for at least a week or ten days after the illness appears to have subsided Antibiotic therapy, such as Chloromycetin, greatly shortens the duration of the disease, but it does not do away with the need for good, sensible nursing care. Although paratyphoid is a less dangerous disease, the same treatment should be given as for typhoid

### *Cholera*

Cholera is a very serious infection involving the lower part of the small bowel It is caused by a short, curved, rod-shaped germ which produces a powerful poison or endotoxin The disease is spread mostly by contaminated food or water, and by fæces and flies It is found principally in south and south east Asia, although it may occur in other areas of the world One of the most striking outbreaks occurred in London about a hundred years ago The tragic experience of a contaminated well in the middle of London actually gave birth to much of our modern public health programmes around the world today

Patients with cholera may first notice a mild diarrhœa This is followed by sudden violent purging and a lack of proper control of

the bowel There is a feeling of oppression and pain in the lower abdomen, followed by muscle spasms like heat cramps The stools are loose, watery, and greyish brown in colour Nausea and vomiting usually come on after diarrhœa has developed

All this sudden loss of fluid causes severe dehydration, and soon the patient begins to suffer from intense thirst His tongue is white and dry His skin is wrinkled, the eyeballs sunken, cheeks hollow, and breathing is somewhat laboured and difficult Because of the lack of fluids in the body, the blood pressure falls, and the temperature may even be subnormal although the pulse rate will be rapid Unless the fluid is quickly replaced death may result from complete collapse of the circulation

With proper treatment, the patient usually begins to recover about the third day of illness Vomiting gradually ceases, and the stools become more normal Temperature may rise to 103° F, the pulse rate falls, and pain begins to disappear from the abdomen. A correct diagnosis is most important in cholera, for its treatment is different from that of other conditions it may resemble.

**Prevention** Cholera can be controlled only by rigid purification of water supplies and proper disposal of human wastes. **Cholera vaccine** is useful for those who live in endemic areas or who have to travel through these areas Booster injections should be given every six months to any who may be exposed to the disease. Other necessary precautions against cholera include avoiding all uncooked vegetables, thorough washing of hands by all who handle food, and the elimination of all contacts with the disease One should insist on good general hygiene and constant vigilance on the part of all concerned Good health is everyone's problem, particularly in areas where cholera exists

**Treatment** It is important to combat dehydration and restore the circulation of fluid in the body For this purpose, intravenous fluids are essential The patient should be given at least 3,000 cc. of fluid by vein every day, as long as the severe vomiting and diarrhœa continue In addition, he may have ice chips by mouth or sips of water frequently, provided this does not increase the tendency to vomiting Measure the amount of urine passed by the patient each day If this amounts to several pints his chances of recovery are better, but blood transfusions are sometimes needed in seriously ill patients When the vomiting is less severe, give the patient warm tea

and liquid food, but not solid foods for at least another twenty four hours Chloromycetin (chloramphenicol) and the tetracyclines, such as Terramycin, have proved valuable in treating cholera Very ill patients should be given ACTH or cortisone by injection to help combat toxæmia and restore the normal chemical balance of the body as soon as possible

### *Dysentery*

Bacillary dysentery is a distressing ailment in which the patient suffers from frequent stools containing blood This is an entirely different disease from amœbic dysentery It is caused by certain germs of the *Shigella* group, of which there are several varieties. These organisms are spread from one person to another by contact, as well as through contaminated food and water The disease may also be spread by flies Epidemics of dysentery usually occur in over crowded areas where there is no adequate sanitation Bacillary dysentery is common in younger children The germs pass directly into the digestive organs causing swelling and superficial ulcerations. The inflammation in severe cases may involve all of the colon and also the lower part of the small bowel

The disease usually strikes suddenly about two days after exposure to the germs especially in children Fever, irritability, drowsiness lack of appetite nausea and vomiting diarrhœa, abdominal pain and distension, and straining at the stool are all part of the picture Two or three days later, blood, pus and mucus appear in the discharges from the bowel, and the patient may have twenty or thirty loose stools a day All this sudden loss of fluid causes marked dehydration Delirium convulsions and coma may occur in the more serious and severe infections and unless properly treated the child may die within the first day or two

In adults the infection is usually less severe, but there may be griping abdominal pain and blood-streaked stools Straining at the stool may produce prolapse of the rectum This form of dysentery may resemble cholera, with "rice water" stools. The disease may even seem like appendicitis and other acute conditions of the abdomen, such as sprue, amœbiasis intestinal parasites, and ulcerative colitis

**Prevention** Good sanitation is important Eliminate all flies and screen all windows and doors to keep out flies and mosquitoes Pro-

tect your food from contamination Boil drinking water Insist that all members of your household wash their hands before handling food Without proper treatment the death rate is high in infants and young children Even with adults this disease is serious

**Treatment** Younger children suffering from dysentery should be treated in hospital if possible, where intravenous therapy can be given All patients should be kept on liquid diet for the first twenty four hours, and also given weak tea Junket or plain curds, which provide both calcium and protein are well tolerated and easily absorbed A soft, bland diet should be given as soon as the stools are more normal Avoid chillies, spices and other irritating substances

The most useful medicines are Chloromycetin (chloramphenicol) and the tetracyclines, such as Terramycin or Achromycin The dosage for any of these is one 250 mg capsule three times a day Paregoric, one half to one teaspoonful every few hours may help to control the diarrhœa and prevent straining at the stool Tincture of belladonna, 10 drops by mouth four times a day, will also help to control the griping pains in the abdomen Young children should be given three drops four times a day Hot moist packs as suggested on page 96 will also help to relieve the abdominal discomfort and pain If these are not available, try a hot water bag but remember to give plenty of fluids by mouth to combat dehydration and shock

## *Kwashiorkor*

Kwashiorkor is a serious deficiency disease arising from mal nutrition in late infancy and childhood It is widely prevalent in those parts of the world where children eat large amounts of starchy food, without an adequate amount of animal or vegetable protein in the diet. There is a complete inter relationship between vitamins and amino acids and when these are missing the child becomes desperately ill Growth is retarded, the limbs are **swollen** the hair becomes reddish brown instead of black, and the child becomes petulant **apathetic,** and often suffers from diarrhœa Some of the trouble seems to stem from fatty infiltration of the liver The pancreas becomes atrophied **Skin infections** are common, and there is often a loss of pigment associated with weakness and anæmia

**Treatment** Seriously ill infants are best treated with skim milk in small quantities given at frequent intervals Gradually the



Kwashiorkor a serious deficiency disease results from too much starch foods and not enough protein.

amount of cream in the milk can be increased Small frequent feedings in the early stages are tolerated best. Multiple vitamins should also be added to the diet. Infections should be treated with suitable antibiotics such as penicillin or Terramycin

The child may also be suffering from malaria or some other parasitic infection and should be given treatment for these With good nursing care most children will make a satisfactory recovery

### *Undulant Fever*

Undulant fever, also known as brucellosis or Malta fever, is seen in many parts of the world It is always more prevalent in *rural areas, particularly among people who work with cattle and* other livestock There are three different kinds of undulant fever

One is carried by cattle, another by pigs, and a third type by goats. All three types react in a similar manner

The disease usually begins suddenly with chills, fever, severe headache, muscle pains and general weakness At times the onset is more insidious, with a moderate temperature in the evening which gradually drops back to normal by morning, followed by profuse sweating The patient may complain of poor appetite, with weight loss, abdominal pain, joint pain, backache, irritability, and depression Unfortunately, it is not always easy to arrive at the correct diagnosis, for there is no single test that is one hundred per cent reliable Undulant fever may resemble typhoid malaria, influenza, and even tuberculosis at times

**Prevention** Undulant fever germs are often present in milk and other dairy products, such as butter and cheese, that have not been boiled or pasteurized The disease can usually be prevented by boiling all milk or by proper pasteurization Gloves should be worn when handling animals suspected of having brucellosis

**Treatment** Keep the patient in bed during the acute stage of the disease Some mild pain relieving medicine such as aspirin, will help to alleviate pain and headache, and also to lower the temperature. Give three or four capsules of Terramycin and also inject 0.5 gm of streptomycin daily as needed Severely ill patients should be given ACTH during the critical time, or one of the cortisone products, such as prednisolone Good nursing care shortens the duration of the illness and is always most important in making a good recovery

## *Tularemia*

## (Rabbit Fever)

Tularemia is another highly infectious disease. It is carried by wild rabbits and other rodents The disease is transmitted from one animal to another through ticks and other vermin Hunters, butchers, farmers, furhandlers, and laboratory workers are most commonly infected with this malady Those who eat inadequately cooked rabbit meat run a great risk of developing the disease

Ulcerated areas may appear on the skin and in other parts of the body, such as round the eyes and lymph glands The disease begins suddenly with headache, chills nausea, vomiting, and severe

prostration After a few days a typhoid like state frequently occurs, and the patient may develop **pneumonia** and inflammation of the spleen

**Prevention** People who handle rodents and wild animals should treat them with great caution and wear protective clothing and gloves Germs of tularemia may not only be present in the animal s body, but there may be infected ticks and other vermin in the fur Those who use wild birds and game animals for food should be sure the meat is thoroughly cooked before eating it.

**Treatment** Inject 1 0 gm of **streptomycin** intramuscularly every day Also give two capsules of Chloromycetin every six hours until the temperature is normal and then one capsule three times a day for the next seven days Good nursing care and adequate fluids are very important in this disease Moist, wet dressings should be laid over the ulcers in the skin A heating cradle, as described in the appendix will relieve the discomfort of the ulcers

*Plague*

**Bubonic plague** is one of the most serious diseases ever to have hit the human race *In the Middle Ages untold millions of people* —some of your ancestors and mine among them—died from this dreadful malady Almost the entire world was overrun by this disease, which is carried mainly by rats and fleas Though other animals carry the germs causing the plague, man is less likely to come into contact with them from those sources.

This is how the disease is spread Infected fleas will leave a dead or dying rat or other animal and jump on the next living creature that comes near, depositing the infected material on the victim s skin When human beings contract the disease they usually develop **pneumonia** and spread the disease to still others by droplet infection This is the *epidemic* form of plague

In the bubonic form which is the more common type, the patient complains of chills, followed by a rapidly rising temperature up to 103 °F, later going up to 106° F There is an anxious expres*sion on the face Soon the victim complains of vomiting thirst,* and pains all over the body His head aches and he feels mentally dull His skin is hot and dry his face is bloated and his eyes red His hearing may be impaired, and he may even have convulsions, stupor and coma

Black spots may appear on the skin It was this that gave rise to the term "Black Death' during the great epidemics of the Middle Ages During the first few days of the disease the lymph nodes become large and tender and are called "buboes ' Many unfortunate victims of the malady develop pneumonia followed by severe heart failure In untreated cases, the outlook is poor the mortality rate going up to 90 per cent in some epidemics

**Treatment** Patients with bubonic plague should be treated in hospital under **strict isolation** techniques **Streptomycin** is the drug of choice. 0.5 gm being injected every three to four hours intramuscularly **Chloramphenicol** (Chloromycetin) should also be given two capsules every three to four hours

**Prevention** Prevention depends upon the control of rats and fleas Eliminate all rubbish around the house DDT sprays can be used to help eliminate fleas and other vermin Good health for the family depends upon a home that is clean wholesome and free from every kind of filth and refuse

CHAPTER 41

# NOSE AND THROAT DISEASES

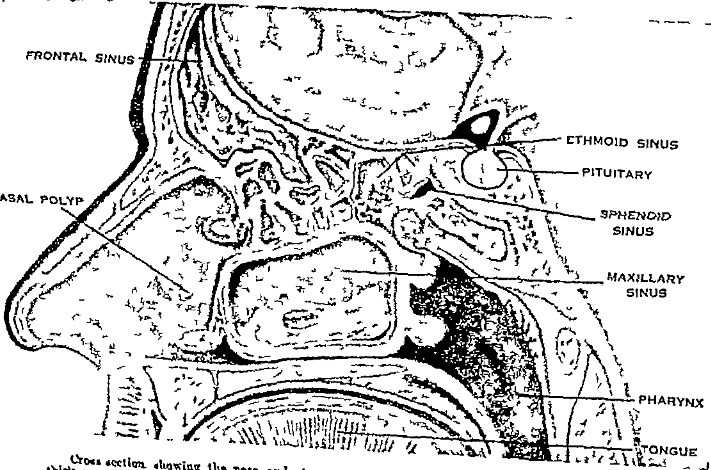
Most invading germs enter the body through the nose and throat Germs are often carried into the body on tiny droplets of water when air is drawn into the lungs Food particles may also be infected with various types of germs such as streptococcus, staphylococcus, and many others Allergic conditions, such as hay fever and sinusitis, are also greatly aggravated by the presence of germs within the tissues of the nose and throat All of this points up the importance of keeping the nasal passages clear and free from infection Nature does this for us perfectly well unless we have problems which the body *cannot readily handle, one of which* is *allergy*

## *Hay Fever*

Hay fever is one form of allergic rhinitis which comes on at certain times of the year In most cases it results from the presence of some form of **pollen** or perhaps **fungus** in the air Although it is commonly called hay fever, it has nothing to do with hay Nor does it have much to do with roses although some people refer to it as **rose fever** Pollens from trees, grasses, and flowers are abundant in the air at certain times of the year and many people become allergic to these Some families seem to have a history of allergy and are more susceptible than others

Hay fever usually begins with intense itching of the nose and sometimes the roof of the mouth and throat as well Tears gather in the eyes, and there is a profuse watery discharge from the nose This is often accompanied by violent **sneezing** and further itching Usually there is headache, irritability, sleeplessness, and gastric upsets. There may be severe itching in the skin with giant **hives** and perhaps **asthma** at times.

**Treatment** If possible, try to avoid the cause of *the trouble* Nose drops containing ephedrine sulphate, neosynephrin, and similar




Cross section showing the nose and sinuses inflamed owing to a severe allergy. A *thick grey discharge in all of the sinuses* indicates an abnormal condition known as chronic sinusitis.

substances are useful in clearing the nasal passage and getting rid of the itching sensation Certain nasal sprays are also valuable for this. In more severe cases, steroids, such as prednisolone, are often effective in keeping the patient free from symptoms during the hay fever season The dose is usually one or two 5 mg tablets a day, as needed Products containing belladonna may be tried Desensitizing injections are beneficial in some cases, but may be disappointing in others. Tablets containing antihistamines are also useful in keeping the nasal passages clear and free from swelling

### *Nasal Polyps*

Nasal polyps are semi transparent tumour like growths in the nose They are usually due to some allergy Large polyps may cause partial or complete obstruction, as well as headache, nasal discharge, and a loss of the sense of smell These growths should be removed surgically At the same time a careful evaluation of the patient's general condition, and especially his sensitivity to dust, pollen, bacteria, and to industrial fumes, tobacco, and other offensive odours should be carried out Whatever the cause of the polyps, the patient should avoid all such types of irritations in future

### *Sinusitis*

Inflammation of the paranasal sinuses often follows the common cold, influenza, and other general infections Germs that would normally be eliminated from the body may sometimes find their way into these little sinuses or chambers on each side of the nasal passages Trouble may be due to inadequate drainage resulting from a deviated septum, or perhaps to the presence of polyps Any chronic infection within the nose may lead to sinusitis

Exposure to marked changes in temperature and humidity may also result in generalized inflammation within the nose, and this may extend into the sinuses **Dental abscesses** may find their way into the maxillary sinuses, which are located on each side of the nose just above the jaw

The patient usually complains of headache, a postnasal discharge, pain, and perhaps a low grade fever, lack of appetite, loss of sense of smell, and even toothache The trouble usually begins in one

sinus, and unless checked it may soon spread to other areas. Most cases clear up rapidly under good treatment, but some go on to the chronic stage. **Sinus headaches** are usually felt in the forehead and behind the eyes, or in the face just below the eyes. Many patients think they are having frequent **colds**, when in reality the trouble is due to recurrent sinus infection.

In severe cases of sinusitis, the inside of the nose appears boggy and red and may be covered with a thin layer of pus. X rays of the sinuses may show the presence of fluid, or even polyps growing inside the involved sinus. The inflammation may also cause a severe infection of the **middle ear,** as well as bronchopneumonia, asthmatic attacks, and even an abscess of the brain in rare cases.

**Treatment.** Nasal sprays containing ephedrine or some similar medication will help to shrink the swollen nasal membranes and allow the inflamed sinuses to drain. If nose drops are used, lie down with the head tilted back and the chin pointing toward the ceiling. It is best to have the head turned a little to the side that is being treated. During the acute stage use the nasal spray or drops every four hours to relieve pressure and to encourage drainage. However, this treatment must not be continued more than a few days, for the excessive use of these medications may cause further trouble and increased discomfort. **Medicated steam inhalations,** as suggested on page 91, are very valuable for this condition. Hot, moist packs to the face once or twice a day will also help.

*Antibiotic treatment,* including penicillin or one of the broad spectrum antibiotics, such as Terramycin, is often helpful in cutting down infection, especially during the acute stage. The tablets should be taken four times a day and continued for at least two days after the temperature has returned to normal.

*Chronic sinusitis* is more difficult to treat. If possible, the patient should see a doctor who specializes in nose and throat diseases. If this cannot be done, place hot, moist packs over the face and rotate the head from side to side slowly for several minutes. Gentle suction may then be applied to each nostril while the other is being kept closed. A soft bulb syringe is best for this purpose. This treatment should be repeated several times a day as needed.

A chronic sinusitis patient should **avoid blowing the nose** too often or too vigorously. When the nose is blown keep the mouth open and close one nostril at a time. If there is profuse postnasal

drainage, a gargle of a teaspoon of salt and teaspoon of soda in a glass of warm water may be used several times a day A little of this may also be drawn up through the nasal passages or pumped in with a soft, rubber bulb syringe Such measures will relieve the uncomfortable feeling and may help to clear up the sinus infection

*Nasal Injuries*

Injuries to the nose are common, and all too often the delicate nasal bones are fractured This may displace the septum to one side or the other, and perhaps change the whole expression of the face It may also interfere with the normal passage of air through the nose. Whenever possible the bones should be replaced in their normal position, so that the nasal septum will heal and the nose will appear straight

Children often insert various objects into their nose, such as pea nuts, beans small toys, and many other things These may not be noted for a while, and then later the child may complain of pain, sneezing, and a foul discharge Young childen are sometimes troubled with insects gaining entrance to the nose, causing similar distressing symptoms

If the foreign body can be readily removed by the use of forceps, tweezers, or suction, by all means remove it. If the object is too firmly embedded, take the child to a hospital emergency room or to your family physician for expert care.

*Nosebleeds*

Nosebleed is very common at all ages of life. Sometimes it may arise from some serious condition, such as high blood pressure, typhoid fever, scurvy, leukæmia or some other generalized condition Children who have **rheumatic fever** or scarlet fever often have nosebleed Some girls are also troubled with nosebleeds during **menstruation** This is not serious and it should be minimized as far as possible in the mind of the girl

Patients suffering from liver disease and jaundice may also be troubled with nasal hæmorrhage. However, most cases of nosebleeding result directly from injury, fracture, a foreign body in the nose, or from nose picking

**Treatment** Find the underlying cause of the trouble if at all possible. Meanwhile, try to stop the bleeding Have the patient sit

upright with the head bent forward and apply pressure on the side of the nose which is bleeding Hold this pressure steady for at least fifteen minutes by the clock Cold applications to the neck and bridge of the nose may also help to cut down the bleeding

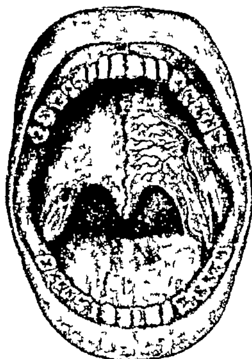
Many cases of bleeding are due to some small vessel spurting blood on one side or other of the nasal septum In this case the vessel should be cauterized under local anæsthesia, preferably with an electric cautery Strong silver nitrate solution may also serve the purpose If there is heavy bleeding, take the patient to the nearest hospital without delay and have the affected nostril packed with gauze.

### *Tonsillitis*

At the back of the mouth on each side there are two small lymph oid organs known as **tonsils.** Normally they are about the size of a Lima bean, but they can become very much larger if severely infected Another similar structure, the lingual tonsil, is located at the back of the tongue close to the other tonsils. Up behind the soft palate are two more lymphoid masses of tissue known as **adenoids.** All of these make a protective ring at the back of the nose and throat to keep infection from spreading throughout the body Inasmuch as most germs enter the body through the mouth, nose, and throat, one can readily see the importance of these tonsils and adenoids, particularly in childhood

By the time one becomes an adult the adenoids have largely disappeared, but during childhood both the tonsils and adenoids may become very large, making breathing difficult and swallowing painful at times Enlarged tonsils are more common in childhood but they are often seen later in life as well. Most often the infection is due to certain types of streptococcus germs. Enlarged adenoids cause **mouth breathing, nasal speech,** a chronic cough and an alteration of the normal appearance of the child s face He may also have marked halitosis or bad breath.

***Acute tonsillitis*** Usually the attack comes on suddenly with chills, fever, headache, weakness, and pains in various parts of the body This is followed by a sore throat and difficulty in swallowing The tonsils appear large, red, and often spotted with yellowish white pus which may be seen oozing from the crypts or cavities on the surface of the tonsils. Most cases of acute tonsillitis clear up readily



Many respiratory diseases begin with sore throat caused by streptococcus germs. It is the work of the tonsils and adenoids to destroy these germs, but sometimes they multiply so rapidly that they cannot be overcome by those organs.

under right treatment However, the inflammation may spread to the middle ear, causing **deafness**, mastoiditis, and painful lymph glands in the neck

Even more serious, the presence of certain streptococcus germs within the throat may result in **rheumatic fever**, rheumatic heart disease, and glomerulonephritis or **Bright's disease** of the kidneys. Tonsillitis should always be treated seriously, for there are times when even cancer is found in tonsils that have been badly infected for years Once the cancer has spread to the throat, it may be too late to effect a cure

**Treatment** During the acute stage antibiotic medicines, such as penicillin, Terramycin, or Achromycin, should be given to bring the inflammation under control. The dosage is 600,000 units of penicillin daily, or one capsule three times a day The **heating compress**, suggested on page 95, is very valuable in relieving the sore throat and reducing swelling and inflammation. Hot saline gargles three or four times a day will also help to clear the mouth and make the patient feel more comfortable. Apply **hot packs** or fomentations to the neck and chest twice daily during the acute stage. Be sure to



The child s tonsils should be checked frequently for infection by the doctor

give sufficient fluids and fruit juices, particularly during the fever For chronically enlarged tonsils and adenoids, surgery is always the method of choice, but this should never be done until the acute inflammation has subsided It may be well to avoid surgery during warmer months, when polio is more likely to develop

*Sore Throat*

The pharynx, or back of the throat, frequently becomes inflamed when a person has a cold or an attack of influenza This inflammation may also involve the tonsils and adenoids if these have not already been removed Other causes of sore throat include sinusitis, measles, diphtheria, Vincent s angina, and even leukemia on rare occasions.

In case of an acute sore throat the patient complains of burning and dryness in the throat followed by chills, fever and some hoarse

ness or laryngitis Lymph glands along the sides of the neck may become swollen and tender The back of the throat itself may be very red and even covered with a greyish white membrane. Swallowing may be difficult, especially during the acute stage The trouble is often due to streptococcus germs If the irritation has extended up into the nasal passages, there will also be a thick postnasal discharge

**Treatment** Patients who are severely ill should always be seen by a physician as soon as possible. It is important to rule out diphtheria. Parents should also realize the dangers of a strep throat, especially in young people and children Certain streptococcus germs are responsible for the very serious condition known as rheumatic fever This is discussed more fully on page 228 If the nasal passages are also inflamed, follow the instructions given on page 91 for medicated steam inhalation Soreness of the throat and neck can often be relieved by applying a heating compress, as described on page 95 This should be done each night until the inflammation subsides A great variety of medicated lozenges are available, and these usually help to reduce irritation Keep the patient in bed as long as there is fever If he has a chest cough, apply hot fomentation to the chest and spine as shown on page 96

*Quinsy*

Quinsy is a large painful abscess inside the mouth, which is most often associated with severe tonsillitis There is soreness and swelling on the affected side, and it may be hard to open the mouth The patient usually runs a high fever (103 to 105° F ) Breathing may be difficult and swallowing almost impossible If the abscess is very large and the fever high, the patient should be treated in hospital where the abscess can be properly drained Occasionally the abscess will rupture and drain spontaneously Penicillin and other antibiotics should always be given to prevent further extension of the inflammation into the back of the throat or head For less painful abscesses give the same treatment as suggested above for sore throat.

*Laryngitis*

Hoarseness or laryngitis is often associated with the common cold or some upper respiratory infection It is usually due to inflammation of the larynx or voice box. The patient complains of an un

natural change of voice, a sense of tickling, and a constant urge to clear the throat. Laryngitis may also come on during an attack of tonsillitis or sinusitis. It may also occur with bronchitis, pneumonia, influenza, measles, and other infections. Coughing is a frequent cause of trouble. Excessive use of the voice may lead to laryngitis.

A very severe form of laryngitis known as **croup** usually involves younger children. This is more fully discussed on page 183. Chronic laryngitis may arise from irritation due to excessive smoking or drinking large amounts of alcohol. Exposure to irritating dusts and fumes, or some long-standing inflammation of the nose and throat may also cause laryngitis.

Tuberculosis of the vocal cords may occur if the lungs and bronchial tubes are involved. Benign tumours and even cancer are sometimes found on the vocal cords, and these may interfere with their normal functioning. Also, an enlarged thyroid gland may bring pressure over the larynx and cause some hoarseness and *difficulty* in breathing.

**Treatment.** During the acute stage follow the treatment recommended for sore throat as found on page 409. A heating compress should be applied and changed every eight hours. Medicated steam inhalations are particularly valuable in this condition. It is usually best to see a nose and throat specialist and have a thorough examination of the vocal cords. *Hoarseness due to tuberculosis can now be* treated satisfactorily with antituberculous medicines. Tumours on the vocal cords can usually be removed by surgery. Everything possible should be done to clear up chronic infections of the tonsils, adenoids, sinuses, and nasal passages. This will not only restore the normal tone of the voice, but will also do much to build up the general health of the patient.

CHAPTER 42

# DENTAL PROBLEMS

The average three year old child should have twenty *deciduous* or baby teeth He should have six teeth at the end of his first year, twelve when he is eighteen months old, sixteen when he is two years old, and all twenty by the time he is two and a half years of age. If during pregnancy his mother's diet lacked calcium, there may be some delay in the time that his teeth push their way through the gums Diseases such as syphilis will also interfere with the normal development and appearance of teeth

In the adult there are thirty two *permanent* teeth The first of these, which grow in below, begin to come through when a child is six or seven years old These permanent teeth usually push out the deciduous or baby teeth By the time a person is twenty five he should have all his teeth The condition of his teeth will largely depend on his diet, and on the kind of *care* he has given the teeth during his growing years It should be noted that *sugar* is not good for the teeth.

### *Cavities*

Almost everyone has had at least one small cavity But in many families cavities are frequent and numerous, and some children lose several of their permanent teeth during the early school years This is tragic, for the loss of teeth will often change the shape of the child's face, and no amount of bridgework applied later can fully take the place of lost teeth

Some teeth seem to be defective from the start, owing possibly to hereditary factors But a great deal of tooth decay is definitely related to the amount of sugar, sweets, soft drinks, and desserts that a child is given in the diet Lack of balance between carbohydrates and proteins may also contribute to this. Insufficient vitamins and minerals are all too common in many modern diets. This is discussed more fully in chapters 5, 6, 7, and 9



Proper and regular use of the toothbrush and frequent visits to the dentist will ensure sound teeth.

### *How to Brush Your Teeth*

Teeth should be properly brushed at least twice a day to maintain good dental health. Brushing should be done in the direction in which they are growing, the upper teeth should be brushed downward, and the lower teeth should be brushed from below, upward. This should be done thoroughly to both the inside and outside surfaces. Use a sweeping motion, being sure that the bristles reach the crevices between the teeth, thus helping to remove any food particles that may have lodged there. When necessary, a little dental floss may be used to clean the areas between the teeth.

The gums should be carefully massaged when brushing the teeth. A brush softened for this purpose may be used. When the gums are soft and diseased, the teeth are likely to become loose and some may even fall out. Poor general health will contribute to unhealthy tissues in the mouth.

A clean mouth contributes toward an attractive personality and a happy disposition. An unsanitary mouth usually arises from years of neglect. But even in the worst dental conditions something can be done to improve the situation.

For good dental health it is wise to visit your dentist once or twice each year. Do not wait until you have several cavities. Go and see him while your teeth are in good condition. If any repair work is needed, do not hesitate to have it done. Your teeth are just as important to your health as they are to your appearance. Do all you can to keep them clean and your mouth in good condition. You will feel happier in knowing that you are not offending others through your neglect.

### *Tooth Decay*

There is much discussion today as to the actual cause of tooth decay. An improper diet favours the development of tooth disease and other maladies of the mouth. Food particles lodged in the area may provide a suitable place for the growth of bacteria, and these in turn apparently produce a local acid reaction which then attacks the surface of the tooth. Microscopic cracks or defects in the enamel, or hard outer covering of the tooth may also favour this process.

Once the enamel has been eroded away the body of the tooth



*This is how teeth develop Permanent teeth are shown pushing out the deciduous, or first, teeth.*

is more easily damaged Eventually inflammation develops in the pulp chamber of the tooth, resulting in the familiar pain of tooth ache. At first the tooth may be merely sensitive to hot and cold substances in the mouth, or perhaps to pressure from biting Later as an abscess forms at the base of the tooth, the pain becomes more severe. It may be sharp throbbing, shooting, or constant. If the tooth is not properly treated it will eventually have to come out.

### *Emergency Treatment for an Aching Tooth*

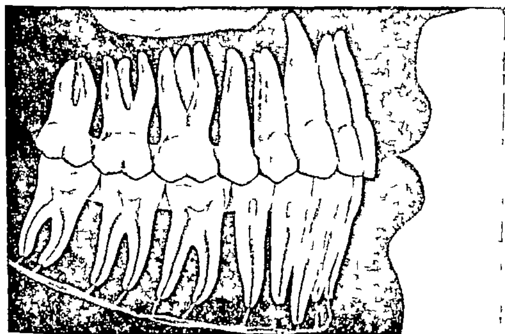
*Treatment* First, add a half teaspoon of salt to a glass of warm water and rinse out your mouth with this solution every few hours as needed Next, apply an ice bag to the side of the face where the pain is felt. If there is food debris in the cavity of the tooth gently remove, and apply a small wad of cotton containing oil of cloves to reduce the pain Oil of cloves is sometimes mixed with chlorobutanol

to give greater relief, the prescription for this being chlorobutanol 4 0 gm and sufficient clove oil to make 15 cc.

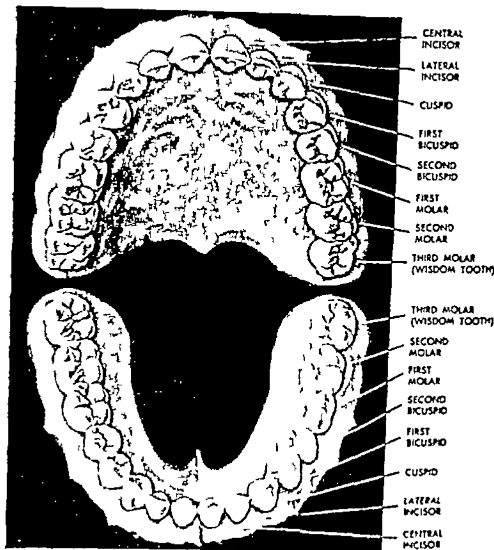
Oil of cloves may also be mixed with a small quantity of zinc oxide powder to make a stiff paste Use this paste to fill the cavity in the aching tooth This will keep food materials from accumulating in the cavity

Remember, there is no substitute for good dental care, and any suggestions given here are only intended for temporary relief until a qualified dentist can be consulted So, as soon as possible, see a good dentist, for with proper care, it may be possible even now to save the tooth

The formation of an *abscess* within the gums is more serious. For this a dentist should be consulted without delay Penicillin and other antibiotics may help to reduce inflammation and will also protect the patient from some more serious condition such as subacute bacterial endocarditis Therefore the sooner a qualified dentist is con sulted the better in order that the abscess may be drained and the tooth extracted if necessary



Permanent teeth, with parts cut away to show channels for blood vessels and nerves.




Drawing of a full set of upper and lower teeth.

## *Inflammation of the Gums*

Inflammation of the gums, also known as gingivitis, may arise from many causes, such as a lack of vitamins, allergic reactions, diabetes, pregnancy, certain drugs, and even leukæmia. Inflamed gums may be the first sign of some more serious underlying disorder. In this condition the gums appear red and swollen, and bleed easily on light pressure. Usually there is no pain. The trouble may be due to lowered

body resistance which makes the gums more susceptible to local inflammation

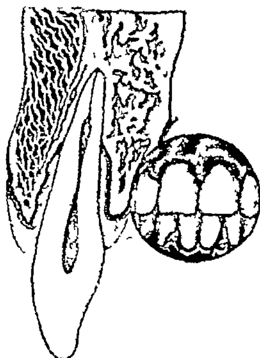
In the more simple cases there may be a bright red band of inflamed gum tissue surrounding the neck of the tooth Slight injury causes immediate bleeding If the patient is suffering from **diabetes**, the inflammation will be more severe Diabetic patients are always more subject to secondary infections in various parts of the body, including the gums In pregnancy a mild inflammation of the gums may occur, but this tends to subside when the baby is born

Patients with **leukæmia** often have pain and swelling in the gums, owing to the presence of various germs in the mouth These attack the gums and other near by tissue, until eventually the entire mouth is inflamed, and the lymph nodes in the neck are enlarged and painful Patients suffering from **scurvy** also have inflamed gums that bleed easily, and unless properly treated the teeth become loose and fall out In **pellagra** the gums bleed easily and are subject to attack from the germs causing Vincent's angina The lips may be red and cracked, the mouth feels scalded while the tongue is smooth and bright red

**Treatment** Patients suffering from inflammation of the gums would do well to have a thorough medical examination to rule out any serious disease. They also need good dental care If the trouble is due to drug reactions, diabetes, or some chronic infection in the mouth, these should be treated and if possible eliminated Dietary deficiencies are easily corrected with the use of vitamin C and B complex, as suggested on page 418 For immediate relief, try rinsing out the mouth every two or three hours with some good mouth wash

### *Vincent's Disease*

Vincent's angina or **trench mouth**, is a painful condition that may arise from several different causes, such as poor oral hygiene, nutritional deficiencies, worry insufficient rest, and heavy smoking Any slight pressure on the gums may cause bleeding Ulcerations may form on the gums and about the mouth, particularly between the teeth. Overwhelming numbers of germs are present in these ulcers Swallowing and talking are painful, there may be excessive salivation and bad breath, and the inflammation may extend to the tonsils and throat A mild fever may be present in this condition



Pyorrhœa is a serious inflammation of the gums, with pus pockets around the teeth. Note the receding gums and breakdown of bone structure.

Treatment In the more severe cases, penicillin should be given by injection the dosage being 600 000 units daily Other antibiotics may be used if the patient happens to be allergic to penicillin A simple but effective type of home treatment is the frequent use of a mouth wash containing one teaspoon of salt and one teaspoon of baking soda in a glass of warm water This should be used every two to three hours to keep the mouth as clean as possible

Another good mouth wash is to use equal parts of hydrogen peroxide and pure water two or three times a day after meals. The patient should carefully brush his teeth and gums to remove any foul material. Tobacco and alcoholic beverages should be eliminated. Multivitamin tablets, especially those high in vitamin C and B complex should be taken to aid in recovery

*Inflammation of the tongue, also known as glossitis,* may be due to some local irritation, or it may be a sign of trouble elsewhere in the body The tongue may be injured by jagged teeth or poorly fitting dentures. Mouth breathing is another common cause. So is repeated biting of the tongue, especially during epileptic seizures. Sometimes the tongue is irritated by certain types of tooth paste,

and also by the dyes used in some types of sweets. Other causes of irritation include the excessive use of alcohol, tobacco, hot foods, and spices.

Lack of vitamins, as in pellagra, must also be considered. Patients with pernicious anæmia, or a deficiency of iron, may have irritation of the tongue. The tip and edges of the organ may be reddened owing to **excessive smoking**. Whitish patches appearing on the tongue may be due to infection with **monilia**, or they may indicate the beginning of further trouble due to **leucoplakia**. A black "hairy" tongue may sometimes follow the use of certain antibiotics.

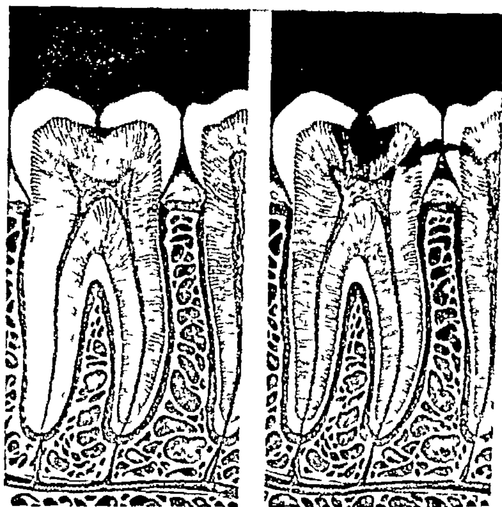
Acute inflammation of the tongue may also arise from burns and other injuries, so that chewing and swallowing are difficult. Some women complain of a painful tongue during their later years, the trouble being due to anæmia or some nutritional deficiency. All of this means that the tongue often serves as a mirror, revealing some disease condition elsewhere in the body. For this reason, any irritation of the tongue calls for careful investigation.

**Treatment**. If the patient is using drugs or other substances causing irritation or to which he is allergic, they, as well as other possible causes should be removed when feasible. Deficiencies in the diet must be corrected. Alcohol, tobacco, spices, and hot irritating drinks should be avoided. A bland, liquid diet is preferable. Good dental hygiene should become the habit of life. Some suitable mouth wash, such as those suggested on page 418, should be used three or four times a day to reduce swelling and inflammation of the tongue. Small pieces of ice held in the mouth may afford relief.

If the trouble is due to monilia, paint the sore spots on the tongue with a 10 per cent solution of sodium caprylate twice daily. **Sulphadiazine** *is useful in treating strep infections of the throat and mouth.* Penicillin may also be beneficial in more severe infections. Jagged or broken teeth should be repaired or removed and ill fitting dentures replaced. Mouth breathing should be avoided as much as possible, particularly during the hours of sleep when the tongue is likely to become dried out and cracked. If these simple measures fail to correct the condition, consult your family physician.

### *Cracked Lips*

Many people are troubled by dry scaling and formation of fissures in the lips and corners of the mouth. This may be due to lack



Dental decay eroding through enamel into denture also involving adjacent tooth on right.

of some of the B vitamins, particularly riboflavin and pyridoxine. Some people have the habit of constantly licking their lips, which may contribute to the trouble.

Hydrocortisone cream applied once or twice daily will usually clear scaling and cracks. High doses of vitamin B complex and a well balanced diet will also help to heal cracked lips. For treatment of cold sores, see pages 422



Severe dental decay Note abscess at root of tooth requiring extraction, as shown at right.

## *Cancer of the Mouth*

Cancer may occur almost anywhere in the mouth, including the lips, cheeks, palate, tongue, gums, and floor of the mouth Even the tonsils may be involved Most cancers are *not painful* especially during the early stages of the disease

Cancer of the lips may follow the use of *pipes, cigarette holders* and *cigars* Cancer inside the mouth is more common in certain

countries where people put the lighted end of a cigar or cigarette inside the mouth and blow the smoke out. Cancer of the stomach is also more common among these people.

Many conditions may cause ulcers in the mouth, but most of these heal rapidly. Any ulcer that does not heal within two weeks should be considered as cancer until proved otherwise. Generally speaking the farther back in the mouth cancer develops, the more serious it is. The best treatment for cancer of the mouth is surgery, followed by radium or X ray therapy if needed.

### *Cold Sores*

Cold sores are painful eruptions usually occurring on the borders of the lips and sometimes inside the mouth. This infection is due to the herpes simplex virus. It strikes first in childhood and seems to return at intervals to plague the patient for the rest of his life. Anything that produces a fever, such as the common cold, may light up the infection. Any slight injury on the inner surface of the lip, such as from dental treatment, may also cause a flare up of this painful and irritating condition. Even food allergies will do it.

In younger children there may be considerable pain inside the mouth as well. This may last four or five days. The disease usually disappears in seven to ten days. In some cases there may be a feeling of fullness in the lips, followed by burning and itching before the actual sore develops. The irritated area may then become infected with other germs from the skin, and a crust or scab forms over the sore spot and may last up to ten days.

Treatment. Use a warm soothing mouth wash, consisting of a teaspoonful of baking soda and a teaspoonful of salt in a glass of water. This will help to cleanse the mouth. Try painting compound tincture of benzoin over the sore area twice a day and avoid licking the lips as much as possible. Camphophenique may also be tried. Apply hydrocortisone dental ointment over the sore spots several times a day. Take one or two multiple vitamin tablets each day for several weeks to make up for any deficiency that may be present.

### *Canker Sores*

Painful ulcers or canker sores are sometimes found within the mouth. Usually there is only one ulcer, but occasionally several may develop at once.

**Treatment** Every two or three hours use some mouth wash, as suggested on page 418 Wash the mouth out thoroughly with this as often as needed Some doctors lightly touch the ulcerated area with a silver nitrate stick or 25 per cent silver nitrate solution on a cotton tipped applicator This helps to cut down inflammation and allows the ulcer to heal Multiple vitamins should be given the patient for several weeks, at least twice daily

*Excessive Saliva*

The average person secretes two to three pints of saliva per day However, under certain circumstances the output may be ten times as much in twenty four hours The most common causes are drugs, poisons, and medicines containing mercury bismuth, and arsenic **Excessive smoking**, which produces local inflammation within the mouth, may also result in excessive saliva Badly fitting dental appliances sometimes increase the output of saliva Nervous troubles are another cause of excessive salivation Motion sickness, migraine, hysteria, Parkinson's disease are sometimes related to this problem

Usually there is some disorder of taste, and perhaps some thickening of speech If the trouble is due to the presence of mercury in some medicine the salivary glands become enlarged and painful This excess saliva seems to irritate the mucous membrane and skin around the lips The tongue may be swollen and coated, and there may be ulcerations on the gums, especially if bismuth has also been used as a medicine There may even be some abdominal pain and diarrhœa

**Treatment** Try to find the cause If the trouble is due to some drug containing bismuth or mercury stop using the medicine An alkaline mouth wash, or some other soothing and cleansing liquid should be used to cleanse the mouth Clear up any infection by the use of penicillin or some other antibiotic Extra vitamins may also help to clear up the condition Medications containing belladonna may also help to control this condition and to allay nervousness

*Dry Mouth*

Dryness of the mouth is a common problem in elderly people It often follows prolonged **mouth breathing**, leaving the tissues cracked

and irritated. A dry mouth may also be associated with various types of fever, particularly cholera and typhoid. It may also follow mumps and uncontrolled diabetes

**Treatment** Apply some bland cream or hydrocortisone ointment to lips and tongue. Nicotinamide may also help to stimulate the flow of saliva. Elderly patients may benefit from injections of hydrocortisone, or the use of prednisolone tablets. Try to avoid mouth breathing Keep the nasal passages clear for easier respiration.

CHAPTER 43

# SKIN CONDITIONS

The human body has been given a most beautiful covering—the skin Nothing is more lovely and attractive than a glowing, healthy skin. All too often, though, one's appearance is marred by ugly scars and chronic eruptions, many of which need never have occurred had the skin received proper care Skin trouble often runs in families. Consequently, members of these families need to be on guard continually But everyone should be aware of the importance of keeping the skin healthy, for this can certainly make or mar one's appearance, perhaps for life!

Your skin has several very important functions It is your *first line* of defence against the germs that might enter the body Enzymes on the surface of the skin quickly destroy germs, provided the skin is healthy and intact But small breaks and tears in the surface of the skin may open the way to infection within the skin, and in the deeper tissues as well

Your skin has another important function, it helps to regulate the *temperature* of the body When you exercise vigorously you produce a lot of heat in the muscles To keep the temperature of the body at a normal level, this heat must be removed quickly, otherwise you will soon have a high fever To cool the body, large amounts of blood are rapidly sent to the skin Many tiny vessels within the skin open up, allowing much more blood to pass through and to be cooled by the outside air

Even more important is the process of perspiration Tiny sweat glands within the skin pour out surprisingly large quantities of water As this perspiration evaporates, it carries off large quantities of heat and this helps to cool the body All of this is brought about by an elaborate system of nerves and blood vessels within the skin, under the direction of the sympathetic nervous system of the body

When the skin is cut or damaged, it usually heals quickly This not only seals off the loss of blood, but also closes the damaged area



Fresh, unblemished skin is a protection for the body and a thing of beauty

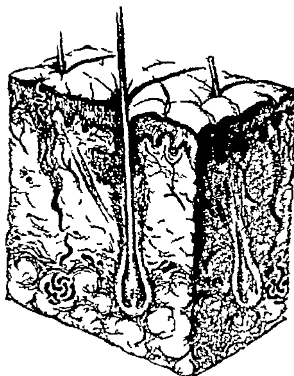
against the entrance of germs. The healing of a wound is one of nature's great miracles As seen under the microscope, all the cells seem to be guided by some unseen force within the body Damaged tissues are quickly removed by the white blood cells, leaving the whole area clean and ready for the new tissues that will form. Fresh young cells now busy themselves, throwing a kind of scaffold across the lacerated area, and then rapidly filling in the spaces between and stitching together the broken edges of the skin. Soon the wound is healed, firmly cemented by scar tissue and a wall of new living cells that protect the body from further injury

Much the same process takes place when the skin is damaged by some eruption, or when some rash breaks out on the surface For instance, chicken pox, so common in young children, first of all begins with a blister, followed by a small open sore Within a day or two this is covered by a crust or scab, which in turn is finally replaced by normal skin After a few months even the tiny scars are gone, unless a more serious secondary infection occurs owing to staphylococcus germs being scratched into the skin These secondary infections usually follow scratching because of intense itching, this being the most common of all skin complaints In fact we all have some itchy spots that we unconsciously rub several times a day

### *Itching*

Itching is a rather unpleasant sensation which we instinctively attempt to relieve by scratching A certain amount of mild itching is normal for everyone Only when it is persistent and troublesome does it become serious Many conditions contribute to itching These include insect bites, hives, contact dermatitis, food allergies, and heat rash Other causes may be diabetes, uræmia, jaundice, pregnancy, the change of life, drug allergies and various types of nervous conditions Persistent scratching may produce swellings in the skin with deep scratch marks and small ulcers into which germs have found their way, causing much more trouble

Itching due to drug reactions are common following the use of certain medicines such as aspirin phenobarbital, penicillin and many others Medicines applied to the skin may also cause a certain amount of itching Some people are allergic to nylon, others



Small portion of skin, greatly magnified to show a shaft of hair growing in follicle Note small muscle to left of hair shaft.

to wool, and still others to dyes and various surface dressings in the cloth

**Treatment** If possible, stop all medications, at least for the present. If the itching has spread over large areas of the body, try an oatmeal bath Mix one cup of oatmeal with two cups of cold water and pour this into a tub of water Lie in this for twenty minutes twice daily When drying yourself, be careful not to increase the irritation Gently pat the skin and then apply some soothing medication such as calamine lotion or Caladryl. If the itching is severe, apply the following prescription two or three times a day as needed

| | |
|---|---|
| Camphor | 1 0 gm |
| Menthol | 1 0 gm |
| Calamine lotion | 100 cc. |

If the itching is very severe, apply **hydrocortisone ointment** once or twice daily. This is much more expensive than the above prescription, but it will control severe itching around the rectal and genital areas, and also around the face and eyes.

Itching arising from an allergic condition, such as a drug reaction, can *often be relieved by some antihistamine preparation such as* Benadryl, taken by mouth, the dose being one or two tablets or capsules three or four times a day as needed.

### *Prickly-Heat*

Prickly heat or **heat rash** is an irritating eruption of the skin due to obstruction of the sweat glands over certain areas of the body. In this condition many tiny pin head size swellings occur in the skin, accompanied by severe itching. The areas most involved are the chest, back, waistline, armpits, and groins. Infants and overweight persons often suffer from heat rash.

**Treatment.** Try to **avoid scratching,** for this may introduce germs into the deeper layers of the skin. Wear cool, light clothing and abstain from alcoholic drinks. Oatmeal baths twice a day, as suggested on page 428, may also relieve the itch. Calamine lotion is often useful. It should be applied several times a day. Be sure to drink plenty of water during hot weather. Keep the skin clean and *avoid* the use of *harsh soaps*.

### *Chafing of the Skin*

When *two skin surfaces rub together, such as under the breasts* or between the thighs, one or both surfaces may become red and irritated. This opens the way for germs and fungi to infect the skin. Burning and itching often follow, especially in the armpits, around the anus, between the fingers and toes and in the groins. Skin chafing is always worse in those who are **overweight,** especially during hot weather. If the patient has **diabetes,** this increases susceptibility to chafing.

**Treatment.** Apply some good talcum powder several times a day. Wear cool clothing and avoid strenuous exercise in hot weather. Obese patients should definitely **lose weight.** Follow instructions for weight reduction as found on pages 71 and 72. Severely irritated skin

may be relieved by applying cool, moist compresses containing a weak solution of potassium permanganate Dissolve one tablet of potassium permanganate in one quart of water Wring out a small compress, such as a face cloth, and apply this to the irritated area for twenty minutes three or four times a day It is best to prepare a fresh solution each day For severely irritated areas, apply 1 per cent hydrocortisone ointment daily If the condition does not readily clear up see your doctor and be sure that diabetes is definitely ruled out.

*Excessive Sweating*

A certain amount of sweating is normal for everyone. But excessive sweating is definitely abnormal and should be investigated Many people are troubled with cold, wet hands and feet, especially when under nervous strain Excessive moisture on the skin always raises the possibility of further infection with fungus and bacteria, especially on the feet, around the genital areas and under the armpits. If the armpits and groins are also involved, strong objectionable odours may arise These odours usually arise from the breakdown of sweat and cellular debris, due to the action of germs on the skin

**Treatment** Make a thorough search for the cause. A complete physical examination is always advisable to rule out the presence of some other disorder that should be corrected For localized areas apply potassium permanganate compresses three times a day, as suggested above. Then apply some good drying talcum powder Frequent bathing is advisable for any who are troubled with objectionable skin odours Scrupulous cleanliness is essential to health In some people, merely shaving the hair from under the arms may relieve this problem For those who are troubled with persistent odours, try this excellent deodorant. Apply neomycin solution, 0.5 per cent once or twice daily to the armpits and groins. Any good germicidal soap such as Cinthol, will help to reduce the number of germs and to relieve the condition

*Excessive Hair*

We probably spend more time on our hair than on any other single feature of the body We are frequently cutting shaving curling brushing or cleaning it. Many of us have too little hair, others have too much in the wrong places.

Excessive hair growth on the face is particularly troublesome to some women Probably some glandular disturbance is responsible, but of this we cannot always be sure. Tumours arising in the ovaries, adrenal glands, and other endocrine organs have sometimes contributed to this condition But in most cases there is no specific cause for excessive growth of hair

**Treatment** If there seems to be some underlying endocrine disturbance, this should be corrected. Excessive hair on the face can be removed by electrolysis, but this is a tedious and somewhat expensive process. There are certain chemicals that may be tried, although these often cause some skin irritation Probably the simplest method is to shave the unwanted hair off as often as necessary, perhaps once or twice a week *This is least expensive and often makes the best* appearance

### *Baldness*

Partial or complete loss of hair on the scalp is rather common among men This is more or less to be expected in the male, but it is very distressing when it occurs in the female Premature baldness is a tendency in certain families Thinning of the hair is often seen in older women but complete baldness in the female is fortunately rare. Temporary baldness may occur following a fever or some prolonged illness The hair usually returns after the patient has recovered from the illness

Sudden loss of hair in certain areas, a condition called **alopecia areata,** may sometimes follow extreme nervous shock. This may clear up in a few weeks, although sometimes it will recur

**Treatment** There is no satisfactory treatment for most forms of baldness Any irritation of the scalp should be cleared up (See Dandruff, page 443), and this may help the hair to grow again. When only small patches of baldness occur suddenly following some illness, hydrocortisone may be injected under the scalp twice weekly in the affected area, the usual dose being 5 mg

### *Leukoderma (Vitiligo)*

Leukoderma or piebald skin is a distressing condition, especially in people with darker complexions The light patches are very marked

This is usually not a disease. It is a cosmetic defect. However, the affected areas sometimes grow larger In contrast to most other skin conditions, leukoderma is usually of lifelong duration

**Treatment** No satisfactory method of treatment is known at present. Meladinine ointment has been used over the light patches of skin Meladinine may also be taken by mouth, after which the patient exposes himself to sunlight However, the repigmentation of the skin is rarely complete enough to be satisfactory Certain proprietary 'tanning' lotions containing dihydroxyacetone may be applied to the affected areas with fair results At least this is worth trying

### *Acne or Pimples*

Pimples are very common in young people during their teen years This condition, which is also known as *acne,* is apparently due to certain hormone changes within the body It is particularly prevalent during early adolescence, from twelve to sixteen years of age, and is more likely to occur in those who have an oily skin In the early stages a **blackhead** or comedone blocks the outlet of an oil gland within the skin This is not a serious problem, for it leaves no permanent effect.

If the sebaceous duct ruptures and the oily material oozes out between the layers of the skin instead of coming to the surface, there may be a cyst or swelling known as a **sebaceous cyst.** These are somewhat disfiguring but not harmful unless they become infected and form small abscesses When these heal they may leave ugly scars Severe acne may occur over the shoulders, the back and chest, as well as the face and neck

**Effects of Diet:** Acne is not caused by diet, but certain foods definitely aggravate this condition, especially in some patients Rich foods, such as chocolate, nuts, cola drinks, ice-cream, fatty meats, and excessive amounts of sugar, all seem to aggravate this condition. Certain drugs such as those containing bromides and iodides, may also play a part in some people.

Some girls develop one or two pimples just before menstruation These only last a day or two and are of no consequence But when acne continues over months or years, it is very distressing especially to a young woman and something should definitely be done to clear up the condition Nervous tension due to family trouble may also



**To maintain a healthy and beautiful skin, it is essential that one follows the principles of good living and avoid all nervous strain**

play a part in continuing this difficult problem Even in its mildest form, acne usually persists for a year or more until the hormone system of the body has become fully adjusted.

**Treatment** Keep the skin clean by thorough washing two or three times a day with a good toilet soap Some slightly abrasive soap will help to eliminate blackheads, but it should be used with care, particularly if the skin is inflamed Smaller blackheads may be carefully removed by the use of a Schamberg loop extractor It is better if some other member of the family does this. Warm moist towels applied to the face for ten or fifteen minutes before the treatment will make the removal of blackheads easier If pus has formed under the skin, be careful not to open the pimple until it is ready to drain Squeezing and pinching of the skin may extend the inflammation and delay healing, and may also cause scarring of the face

For mild infections of the face, apply white lotion once or twice daily, gently rubbing the solution into the skin There are many

good commercial preparations that may also be tried Another simple ointment that can readily be made up is

| | |
|---|---|
| Resorcinol | 1 8 gm. |
| Precipitated Sulphur | 3 0 gm |
| Hydrophilic Ointment enough | to make 60 gm |

Apply this to the affected areas once or twice daily Hydrocortisone lotions are also helpful, especially when combined with neomycin sulphate. Hot compresses, as suggested in the Appendix, applied once or twice daily will help to relieve the inflammation

In very severe cases, X ray therapy may be considered. This must be done only by a skin specialist using the proper equipment, otherwise it is best not used at all. In the severe cases with **abscess formation**, penicillin or sulpha may be tried. These will reduce the infection in the skin Acne is always worse during the colder months. Exposure to sunlight has proved beneficial, but this should not be overdone. Moderate doses of sunshine are best.

Skin that is badly scarred can be planed down by the use of a rapidly revolving instrument to which a stiff wire brush is attached This treatment is known as **dermabrasion** It can be done in the doctor's office, but should be attempted only by a qualified skin specialist or a plastic surgeon.

**Diet:** Avoid all rich foods, excessive amounts of sugar, and particularly chocolate and nuts Choose a plain, well balanced diet containing plenty of fresh fruits and vegetables. Drink water and fruit juices, but avoid highly sweetened drinks. Extra vitamin A tablets should be added to the diet.

Try to sleep at least eight hours every night. Avoid all nervous strain and follow the principles of good living as far as possible, for these are essential to health

### *Acne Rosacea*

Acne rosacea is an abnormal flushing and irritation of the face and nose It may also affect the cheeks, chin, and forehead at times. Acne rosacea occurs more frequently in middle-aged people. But there are times when it is also seen in children and young adults, particularly if there has been similar trouble in past generations of their family

Certain substances, such as coffee, tea, chocolate, nuts, and hot spicy foods, may be associated with this condition. **Alcohol** may also bring this on Some medicines, especially those containing iodides and bromides, are likely to cause these unwanted eruptions on the face. Extremes of heat, cold, and wind may also aggravate the affected skin. Nervous tension is often a factor The condition is really a cosmetic problem, but it is most annoying, though not really serious

**Treatment** Try eliminating all suspected foods and medicines for two or three weeks Avoid coffee, tea, chocolate, nuts, and spicy foods The use of alcohol should be discontinued for life.

### *Impetigo*

Impetigo usually occurs in infants and younger children Certain germs infect the skin, resulting in sores all over the face and body These crusts or scabs appear to be stuck on the skin The disease is highly contagious, and children with it should be isolated until the condition is cleared up

**Treatment** Gently wash the skin with soap and water two or three times daily, removing the crusts or scabs Then apply warm compresses of potassium permanganate solution for twenty minutes three or four times a day (Dissolve one 5 grain tablet of potassium permanganate in a quart of warm water Be sure to make up a fresh solution each day ) Allow the skin to dry Then apply neomycin ointment two or three times a day to each sore area. A penicillin injection given daily for three or four days will also help to quickly clear this condition Children who are allergic to penicillin may be given Terramycin or other antibiotic medicines, as suggested in the Appendix

### *Boils and Carbuncles*

A **boil** is a tender swelling in the skin surrounded by a large red area. A **carbuncle** is a group of boils close together, which may later form one very large boil with several openings to the surface. Boils are particularly painful in those areas where the skin is closely attached to the underlying tissues, such as on the nose, ears or fingers Boils are more likely to occur in healthy young adults and teen agers.

Boils and carbuncles are not only painful, but they may also

indicate the presence of some underlying condition, such as *diabetes* Carbuncles seem to occur more frequently in men, usually at the back of the neck near the hair line. Staphylococcus germs are usually the cause of boils and carbuncles Although the condition may seem to clear up readily, it may return after the original boil has healed The pus discharged from the boil is highly infectious, and great care should be taken to prevent the infection from spreading to other parts of the skin

**Treatment** Apply warm moist compresses three or four times a day over the tender area This will help to bring the boil to a head and encourage easy drainage The surrounding skin should be protected by applying an ointment containing neomycin and bacitracin Large boils may need to be opened under local anæsthesia the most suitable being ethyl chloride spray A daily injection of penicillin, 600 000 units, will help to shorten the time of infection Other antibiotics, such as Achromycin, 250 mg three or four times a day may be used in place of penicillin Large areas of surrounding skin should be bathed with liquid green soap solution and then washed off thoroughly After drying, apply rubbing alcohol for five minutes two or three times a day to all the surrounding skin area. This will kill germs and prevent further spread of the infection Very large carbuncles are best treated in hospital All patients with boils should be tested for diabetes, especially if there is a family history of this disease.

### *Hangnail*

Infections around the nails are common, especially after improper manicuring or from wearing poorly fitting shoes. The infection may extend under the nail, causing severe pain Unless the infection is brought under control the condition may spread to the tendons and other near by structures

**Treatment** Soak the finger or toe in hot water three or four times a day for at least ten to fifteen minutes Apply some antibiotic ointment containing neomycin and bacitracin If pus is present, this should be opened by the doctor and proper drainage assured In some cases it may be necessary to remove the nail completely under some suitable local anæsthetic, such as Novocaine or Xylocaine

### *Beard Infections*

Sometimes the hair follicles of the face become infected, resulting in small tender lesions, similar to tiny boils. There may be itching, burning, and pain

**Treatment** Wash the face thoroughly with soap and warm water three times a day With a pair of tweezers gently remove the hair from the infected follicle and apply an antibiotic ointment containing neomycin and bacitracin Penicillin or some other antibiotic, such as Terramycin, may help to clear up the skin infection Rubbing alcohol applied to the face will help to reduce further spread of this condition If you have been in the habit of using a razor, you might try an electric shaver for a while This could help to prevent infection when all other measures fail X ray therapy may bring relief, but this should be given only by a doctor who specializes in treating such skin conditions

### *Warts*

Warts come in various shapes and sizes and usually appear as rough elevations in the skin They occur most frequently on the fingers, elbows, knees, face, and scalp They may also be seen in different forms on the soles of the feet, and in the genital and rectal areas Warts are apparently due to a virus infection of the skin

**Treatment** Although most warts are fairly easy to remove, they often tend to return, either at the same site or somewhere near by Ugly warts can be removed under local anæsthesia by the use of an electric cautery Certain caustic substances, such as trichloracetic acid, may be applied every three or four days to the top of the wart But one must avoid contaminating the surrounding tissues Caustic solutions must be handled carefully

### *Fungus Infections*

Just as fungus lives on the bark and wood of dead trees, so certain types of fungi may also live on the surface of skin, especially in the moist areas of the body In certain types of illness, such as diabetes and rheumatoid arthritis, fungus may attack living tissues But this does not occur in healthy people Fungus is found in a wide variety

of forms causing many different conditions. In this book, we can only briefly discuss the more common types.

*Athlete's foot* This is a form of *ringworm* of the feet. It is particularly common in warmer climates, and in individuals whose feet are constantly wet because of excessive sweating When the disease is present over long periods of time, the toe-nails may become thickened

**Treatment:** Bathe the feet thoroughly twice daily, dry them well, and rub away the loosened dead skin Next apply a suitable dusting powder containing **zinc stearate** or a powder containing a mixture of equal parts of zinc oxide, zinc stearate, and talcum powder Wear light, **airy shoes**, especially during warm weather Many patients benefit by going barefoot. For more severe infections, use hot foot soaks of **potassium permanganate** solution (Dissolve one 5 grain tablet in a quart of warm water and soak the feet for twenty minutes two or three times a day ) **Whitfield's ointment** applied daily has proved effective, especially for infections between the toes

**Ringworm.** Ringworm most commonly occurs in children, and may be seen on the trunk, extremities, or scalp It is highly contagious and easily spreads from one child to another The skin appears red with a slightly raised border, and the lesions seem to continually expand

**Treatment:** Griseofulvin tablets three or four times a day for one or two months are often useful Mild sulpha-salicylic ointment may also be tried. Whitfield's ointment may be useful either half strength or full strength For more severe cases, **hydrocortisone ointment** can be used daily

## *Eczema*

Eczema is a troublesome skin condition characterized by redness, cracking oozing and scaling of the skin Extremes of heat and cold, and even emotional stress seem to play a part in this condition. The patient usually complains of itching and burning in the skin, especially at night. Sores appear on various parts of the body, but most often on the hands, feet, ears, and legs. Eczema may come on at any time of life and in either sex

**Treatment** If the hands are involved, wear cotton gloves. Avoid the use of all harsh soaps and chemicals. Apply ***silicone protective***

cream two or three times a day to the irritated area Emotional upsets should be avoided as far as possible. It is most important to be sure the patient does not have *diabetes* or some other disease *Hydrocortisone ointment* (0 5 per cent) is often helpful If there is marked swelling under the skin, a few injections of **penicillin** may be needed to clear up the infection But one must be sure the patient is not sensitive to penicillin or any other medication.

*Scabies or Itch*

This intense form of itching, caused by a tiny creature known as the itch mite, has been known for centuries It rarely occurs in those who live in a good hygienic environment But under war conditions or other forms of disaster, when large numbers of people are displaced from their homes and crowded together under unhygienic conditions, scabies may become a real problem The female itch mite burrows under the outer layer of the skin, depositing her eggs along the tunnel Within a few days the larvæ hatch and then tend to congregate around the hair follicles of the skin Scabies is readily transmitted from one person to another Therefore, whenever a genuine case of scabies occurs, the whole family should be treated

The itching is usually worse at night Often it involves the genital areas, as well as the spaces between the fingers, the front surface of the wrists, around the elbows, under the armpits, around the nipples, along the belt line, and on the lower part of the buttocks The burrow made by the itch mite appears as a fine, wavy, dark line, if indeed it can be seen at all. Often there is swelling, as well as scratch marks and local eczema over the irritated areas, and this may cover up the tiny tunnels so that they will not be seen.

**Treatment** Soak the whole body for at least twenty minutes in a hot bath, using plenty of soap Pay particular attention to the itching areas, scrubbing them thoroughly Next, apply a 25 per cent emulsion of **benzyl benzoate.** Cover the entire body with this solution, from the neck down to the toes, both back and front. Repeat this next morning All the underclothing should be given **thorough laundering,** and the outer garments should either be dry-cleaned or pressed with a hot iron Pay particular attention to the seams while doing this The heat will kill any parasites present in the clothing

If the benzyl benzoate emulsion is not available, apply **sulphur**

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**cream** two or three times a day to the irritated area. Emotional upsets should be avoided as far as possible It is most important to be sure the patient does not have *diabetes* or some other disease. *Hydrocortisone ointment* (0.5 per cent) is often helpful If there is marked swelling under the skin, a few injections of **penicillin** may be needed to clear up the infection But one must be sure the patient is not sensitive to penicillin or any other medication

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If the benzyl benzoate emulsion is not available, apply **sulphur**

ointment to all the body, rubbing it in thoroughly after a hot bath Use 10 per cent sulphur ointment for adults, and 5 per cent for children Apply this on three successive nights **Calamine lotion** will help to control the itch Try not to scratch the skin For badly inflamed areas apply **neomycin ointment** containing cortisone. Make sure the bedding is also thoroughly cleaned and laundered Treat every member of the family at the same time, and clean the house thoroughly

*Lice Infections*

Three main types of lice may affect the human body One type attacks the scalp and head, another attacks the body, and the third attacks the genital areas, and occasionally the eyebrows and eyelashes The parasites may also be found in the seams of clothing

In the hair, small oval shaped nits may adhere to the hair shafts in great numbers These are often difficult to remove In a few days they mature, becoming fully grown lice Itching is usually severe and the skin shows evidence of much scratching

Body lice are common in people who are crowded together and living under poor sanitary conditions They spread rapidly during wars and other disasters. At such times lice will sometimes transmit serious conditions such as epidemic **typhus**, trench fever, and **relapsing fever** These diseases are discussed elsewhere in this book. The itching is intense, and red bite marks may even be seen in the skin

Treatment Thoroughly cleanse the whole body from the scalp to the toes using plenty of soap and water Next, apply 5 per cent **benzyl benzoate** emulsion to all the itching areas Rub this well into the scalp at night, especially if the hair has been invaded by the parasites. Dust the skin with 5 per cent DDT powder especially in the areas where the parasites are found Thorough laundering of the underclothing and dry-cleaning of the street clothes will help to get rid of these pests. Apply a hot iron along the seams and over all the outer clothing All members of the family should be thoroughly examined and given the same treatment if necessary Toilet seats and other sources of infection should be examined and thoroughly cleaned If the eyelids and eyelashes are invaded by the parasite, apply 1 per cent yellow oxide of mercury ointment several times a day

### *Contact Dermatitis*

Contact dermatitis, also known as *dermatitis venenata* is an inflammation of the skin due to contact with some particular substance to which an individual may be sensitive The many different substances causing this dermatitis may be contacted from various plants, or from such substances as hair dyes, bleaches, skin tonics, nail polish, perfume, wool, silk, nylon, floor wax, and various detergents

Today many new industrial compounds are being produced for industry or medicine, so we cannot always tell the exact cause of the trouble Insecticide sprays may cause a widespread inflammation which usually disappears within a few days when the cause is removed If the inflammation continues for a time, it may be followed by temporary thickening of the skin

Normal skin is able to resist most of these harmful substances, but some types of skin are very sensitive. A person may be sensitized after only one or two exposures Lighter-skinned people seem to suffer more frequently

Any part of the body may be affected But certain parts are more likely to be involved These include the sex areas, and exposed areas as, the eyelids, forearms, face and neck

**Treatment** No treatment is effective until the offending agent is removed This is not always easy, but a serious attempt should be made to find and eliminate the cause, if at all possible In severely inflamed skin, apply **moist warm compresses** of potassium permanganate solution (Make up this solution by dissolving one 5 grain tablet in a quart of warm water ) Moisten the compress and wring it out thoroughly, then apply to the irritated area Repeat this two or three times a day as needed If the dermatitis is very severe, give 40 units of ACTH daily by intramuscular injection for two or three days. Oral Prednisolone, 5 mg four times a day, may also be given at the same time Usually when the cause is removed, the condition clears up quickly

### *Neurodermatitis*

Neurodermatitis is a chronic type of itching and inflammation of the skin The itching area may be in some localized spot or it may

extend over large areas of the body The condition may even develop in infants It may disappear after the age of two, only to return in the early teens or later The condition is more often seen in those who suffer from fever, hives, and asthma. The true cause is hard to find, for most of these people are allergic to many things, particularly when they are nervous and upset. Many of them are tense and restless and are troubled with a dry skin They are hypersensitive and are often given to itching, especially in the bend of the elbow or behind the knee The constant scratching leaves deep scratch marks and causes thickening and furrowing of the skin

**Treatment** Apply some simple ointment to the affected area two or three times a day as needed **Rosewater ointment** is excellent for this purpose Another prescription that might be tried is

| | |
|---|---|
| Aluminium Acetate Solution | 10 0 cc. |
| Wool Fat | 20 0 gm |
| Zinc Oxide Paste | 30 0 gm |

Apply to the itching area three times a day as needed

For more severe itching, try **hydrocortisone ointment.** This is expensive, but it is often more effective during the severe stage Apply only small amounts and rub in thoroughly Benadryl and other antihistamines may be given by mouth three or four times a day to relieve the itching Often a change of climate is beneficial. Air-conditioning could also be helpful. Above all, try to remove all causes of tension and nervous agitation for although these may not be the cause, they always aggravate a case of neurodermatitis. Equanil (meprobomate) 400 mg can be taken three or four times a day to control the nervous agitation

### *Seborrhoeic Dermatitis*

Seborrhoeic dermatitis is a chronic inflammation of the skin most frequently seen on the scalp The true cause is not known. Inflammation may begin on the skin behind the ears. Later the whole scalp may be involved including the external ear canals From there, it may spread to the eyebrows, the folds of the nose, and the front of the chest. Reddish, scaling patches may also appear under the breasts and in the body creases especially around the groin and

anal areas Whenever this occurs, a careful study for diabetes should always be made

**Treatment** Apply some suitable lotion or ointment, such as the following

| | |
|---|---|
| Resorcinol | 4 0 gm. |
| Salicylic Acid | 4 0 gm |
| Glycerin | 4 0 cc. |
| Alcohol, 70% to make | 240 cc. |

Apply this to the scalp each day for one week, after that once a week as needed

A proprietary preparation, known as **Selsun,** will also help to clear this infection Wet the scalp, then pour a small quantity of Selsun into the palm of your hand Dip your fingers in the solution and apply them to the scalp and roots of the hair Leave the Selsun on the scalp, then use your regular shampoo, washing the hair thoroughly Repeat this treatment twice a week as needed

Another useful preparation is

| | |
|---|---|
| Salicylic Acid | 1 8 gm. |
| Precipitated Sulphur | 1 8 gm |
| Hydrophilic Ointment to make | 60 gm |

Apply this daily to the scalp as often as needed.

Very severe cases of seborrhoeic dermatitis may respond well to hydrocortisone ointment. In folds where moisture is likely to gather, apply talcum powder and keep the skin dry Overweight patients should definitely lose weight. This will improve their health, and at the same time help to clear up the dermatitis

## *Dandruff*

The term 'dandruff' includes several different conditions of the scalp In the milder stages, there is scaling in which the entire scalp may be covered with loose dry scales When the hair is combed or brushed, or when the scalp is scratched, these scales fall like "snow" on the shoulders Often there is itching as well, and the scalp may be red from scratching

What is at first thought to be dandruff may later prove to be *some other condition, such as* **seborrhoeic dermatitis**, mentioned above, or worse still **psoriasis** (see page 445), and even **neurodermatitis**, which is discussed on page 441

**Treatment** *If the scalp is covered with greasy scales, wash the hair thoroughly every day, using some good soap or medicated shampoo Frequent washing will not harm the hair* If necessary you may use this good cleansing preparation

| | |
|---|---|
| Resorcinol | 4 0 gm |
| Salicylic Acid | 4 0 gm |
| Glycerin | 4 0 cc |
| Alcohol, 70% to make | 240 cc. |

*If there are red patches with bright, silvery scales on other parts* of the body, such as over the knees or behind the elbows, the trouble may be due to psoriasis. The treatment for this is suggested on page 445 *For very persistent lesions apply* **hydrocortisone cream** *1% daily as* needed

Itching lesions of the scalp are often due to **neurodermatitis**, *especially when it occurs on the back of the head Apply 1% hydro*cortisone cream daily to the itching area. Injections of hydrocortisone into or under the skin may also help to clear up the more persistent *areas of irritation*

**Summary** Keep the hair and scalp clean by frequent shampoos Clean your comb and brush after each use. Follow the directions suggested for more stubborn cases of dandruff, and DON'T SCRATCH!

## *Drug Eruptions*

Inflammation of the skin may occur after the use of certain drugs, particularly in those who are troubled by other allergic conditions, such as asthma, hay fever, and hives or localized swellings of the skin Penicillin reactions are common There is often a widespread rash. Medicines containing bromides and iodides may also cause a rash, and even small pustules may form in those who are allergic to these drugs. Cortisone in some people may give strange allergic reactions in the skin and in other parts of the body

**Treatment:** Most drug reactions in the skin will quickly subside after the offending drug has been discontinued. *If the rash is severe* one or two injections of ACTH may help to clear it up the usual dose

being 40 units given intramuscularly Patients with severe skin reactions may need to be treated in hospital, where intravenous therapy is readily available, and the patient s general condition can be watched for any unfavourable reactions

### *Psoriasis*

Psoriasis, a chronic skin condition, usually extends over many years Sometimes it seems to clear up for a while, only to return later The affected skin appears red and irritated and may be covered with bright silvery scales Usually there is little itching Areas most likely to be involved are the scalp, the skin behind the ears, the front of the knees, behind the elbows, and the lower part of the back. Other parts of the body may also be affected Except for the irritated skin, the patient usually feels quite well Even the hair growth does not seem to be affected In a few cases, the patient may complain of arthritis in the fingers or toes.

**Treatment** Remember this is a chronic condition Sometimes it responds quite well to some new medicine and may even disappear for a while, only to recur later **Sunlight** in moderate doses is beneficial in most cases The patient should have adequate **rest** and a well balanced diet. Every effort should be made to relieve all nervous tension, for this is often a factor Here is a useful prescription that may be tried

| | |
|---|---|
| Salicylic Acid | 0 6 gm |
| Ammoniated Mercury | 0 6 gm |
| Hydrophilic Ointment, to make | 30 gm |

Apply this twice daily to the affected areas Injections of **hydrocortisone** into the skin, given immediately beneath the lesions, may also help to clear up this troublesome condition

### *Leprosy*

Leprosy, or Hansen s disease, has been known since early times. However, many other chronic conditions affecting the skin, such as tuberculosis, psoriasis, leukæmia, and scurvy may have been confused with leprosy in the past. True leprosy as we understand it today is a mildly contagious disease caused by a rod-shaped germ The disease is

now found mainly in warmer climates and is of two distinct types one largely affecting the nerves, the other being found mainly in the skin

The cutaneous or skin type of leprosy begins with small, light red or purple, pimple-like lesions that spread in clusters, giving a lion like appearance to the face when found there Small nodules may appear on the eyelids, and ulcers may occur inside the nose, causing occasional bleeding

The nerve type of leprosy may cause anæsthesia or a lack of feeling in the involved limb or area of the body Sometimes there is a painful type of neuritis At other times the hands or feet may be deformed Ulcers may appear on the affected area, especially on the toes, often leading to the loss of several toes and perhaps a whole foot.

**Prevention:** All patients with leprosy should be isolated during the acute stages When the disease is brought under control, isolation is not usually necessary

**Treatment** The sulphone drugs are most widely used today **Dapsone** should be given twice weekly, beginning with doses of 100 mg by mouth the first week, 200 mg the second, and 300 mg twice a week thereafter Sulfoxone sodium can also be given orally, beginning with 0 3 gm. daily for the first week, 0 6 gm. for the next three weeks, then 1 0 gm per day as needed Local public health authorities may wish to institute a different programme, which may be more desirable in certain areas

Bed rest may be advisable during the periods when the patient is suffering from fever during lepra reactions. **Prednisolone** will often bring relief during severe crises, the dosage being 5 mg two or three times a day until the patient improves **Sulphathiazole ointment** (5%) will often help to heal large ulcers.

### *Lupus Erythematosus*

This is a chronic disease of the skin that sometimes also involves the mucous membranes and other tissues of the body The true cause is not known Lupus erythematosus is more common in women between twenty and forty years of age. Small reddish patches appear over the sides of the face, under the eyes, and over the bridge of the nose, also behind the ears and on the scalp the so-called ' butterfly lesion ' This is more noticeable after exposure to sunlight. For this condition a night

diagnosis is most important Not only must the appearance of the skin be carefully observed, but various tests should also be done

**Treatment** Direct sunshine should be avoided as much as possible Some useful anti-sunburn lotion or cream should be applied to the irritated skin whenever one has to go into bright sunlight Chloroquine phosphate, 500 mg per day for two weeks followed by 250 mg a day for the next two or three months should be tried The lesions can also be partly covered by a soft tinted ointment made as follows

| | |
|---|---|
| Boric Acid Ointment | 30 gm |
| Rose Water Ointment | 30 gm |

This should be applied to the skin daily to keep the lesions of the face soft

A more serious form known as systemic *lupus erythematosus* occurs when the disease involves the heart, kidneys, lymph nodes, and spleen The patient may complain of fever, loss of weight, vague joint pains, attacks of pleurisy, abdominal pain, and in a few cases the typical 'butterfly" pattern of lesions on the face There may be pains in the joints at times This is a serious condition requiring the care of a well qualified physician Fortunately it is rather rare Patients with this disease must avoid physical exhaustion and all nervous strain and tension ACTH and cortisone will often help to control the symptoms The patient should be on a balanced diet and be given blood transfusions if he becomes anæmic

### *Corns and Calluses*

**Corns** are painful thickenings of the skin usually found over the joints of the toes and on the soles of the feet They are tender when touched, and often result from wearing badly fitting shoes **Calluses** are similar to corns except that larger areas of the skin are involved In these the skin itself is not so tender but is greatly thickened by the extra use, such as on the soles and heels of the feet. Any undue pressure on the feet may produce a corn or callus

**Treatment** Try to eliminate excessive pressure over the area by wearing softer, better fitting shoes. Also, apply a small piece of moleskin plaster or bandage to prevent any undue soreness and thickening of the skin Thickened skin may also be softened and removed by painting the area each night with the following solution



Blackhead



Boil

| | |
|---|---|
| Salicylic Acid | 6 gm. |
| Collodion enough to make | 30 cc. |

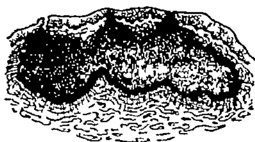
In using this solution, care must be taken to avoid injuring the surrounding skin. Thickened skin may also be filed down by using a nail file or a piece of emery paper. Pads or rings of various shapes and sizes may be placed over the area so that only a little pressure will be felt over the affected spot. Many people can be greatly helped by seeing a chiropodist. However, patients with diabetes or hardening of the arteries should also seek advice from their own family physician.

### *Bedsores*

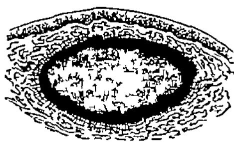
A bedsore (decubitus ulcer) occurs when the skin over some bony prominence breaks because of prolonged pressure over the area. This is most likely to occur when an elderly patient has to spend a long time in bed, such as after a stroke or perhaps a spinal cord injury. These chronic sores are usually found over the lower parts of the back, and over the bony prominences of the legs and ankles.

*Pressure over the skin cuts off the local blood supply,* causing necrosis and gangrene. Because many of these patients are already in poor physical condition, bedsores are a problem in nursing, especially if the patient is unable to control the urine or feces.

First signs of trouble are increased **redness** of the skin, which may later turn darker owing to local cyanosis. Small blisters may also be present. Eventually the surface of the skin breaks down and an ulcer develops which tunnels through the skin and into the deeper tissues, such as muscles and even the bone. Once the skin is broken, infection



Carbuncle



Abscess

sets in, and the ulcer may continue to spread and burrow under the skin in different directions

**Prevention** Bedsores and decubitus ulcers are *easier to prevent* than to cure Therefore one must take precautions to avoid injury to the skin **Turn the patient** from side to side every hour to prevent long periods of pressure over the same area Use small **foam rubber pads** to protect these areas Fluffed pillows and **rolled blankets** should be placed under the knees so that the pressure will come on the bottom of the heel instead of on the back of the heel where the ulcers are more likely to form

Keep the patient s bed clean and free from wrinkles The sheets should be tightly tucked in under the mattress Remember that small hard particles may easily injure the skin Crumbs should not be allowed to remain in the patient s bed Keep the skin clean and dry at all times Change the bed clothes frequently

Good skin care is most important in preventing bedsores Sponge the skin, especially in hot weather, thoroughly drying it after each bath Then apply **rubbing alcohol** to keep the skin surface hard Finally, use a **dusting powder** containing talcum or zinc stearate, or use a **silicone spray** to protect the skin This is particularly important in those areas where pressure is likely to be felt. Remember, elderly patients do not always feel pain Therefore, you must anticipate their needs and provide the best nursing care possible. When the patient is unable to control his urine, it may be well to consider using an indwelling catheter Always change the dressings frequently and keep the patient dry

**Treatment** In treating a bedsore continue to follow the suggestions just made. Stimulate the circulation around the area by gentle **massage** and infrared radiation A heating lamp is always useful for

any patient who must remain in bed for any length of time. Apply **compound tincture of benzoin** to the irritated skin area or else use a silicone spray. Zinc oxide ointment should also be applied to the ulcer. Be sure the patient has a well balanced diet with plenty of protein and also extra vitamins.

Carefully remove any dead tissue inside the ulcer, leaving the area open to the air. Then place a heating lamp at a suitable distance to avoid burning the skin. Certain enzymes, such as trypsin, may be applied in the form of dry powder or in wet dressings. Ointment containing 5% neomycin and bacitracin is also of real value in this condition. If an abscess develops, the patient should be given penicillin injections daily, or else some other antibiotic, such as Terramycin by mouth three times a day. Nothing is more difficult to clear up than a chronic bedsore. Therefore, everything possible should be done to prevent bedsores before they start.

### *Moles and Birthmarks*

Moles are small pigmented tumours, consisting of clusters of naevus cells containing melanin, a special pigment of the skin. Moles vary a great deal in colour, some being yellow or brown, and others purple and black. They may be large or small, flat or raised, smooth, hairy, and some even have the appearance of warts. Some moles stand out on small stalks. A few moles may be present at birth and are known as **birthmarks**. Occasionally a mole may become malignant, a condition known as **melanoma**, a particularly dangerous form of skin cancer.

Ordinary moles are usually benign, and the chance of their developing into malignant tumours is very slight. But a special kind of mole called a **junction naevus** may appear like any other mole, and yet it can become highly malignant. Any mole that is growing rapidly and turning a darker colour may be malignant and should be removed.

**Treatment.** Most moles can be left entirely alone. However, many people prefer to have them removed for cosmetic reasons and this is quite understandable. If a mole is removed, it is always wise to have the tissues studied by a pathologist. The complete mole should be removed at the time of surgery to prevent any pre-malignant mole from becoming malignant. If a mole is definitely suspected of being malignant, the lesion should be widely excised, by either a surgeon or skin specialist. Any mole changing colour should always be removed. The same is true of bleeding or ulcerated moles.

Generally speaking malignant melanomas are more likely to devel op in the legs. Moles that are constantly subjected to irritation as from belts or tight bands are always more likely to undergo malignant change Such moles should be removed As a rule, if there is hair growing out of the mole, it is not likely to be malignant Usually there is no danger in removing such moles by surgery or electric cautery for cosmetic reasons

*Skin Cancer*

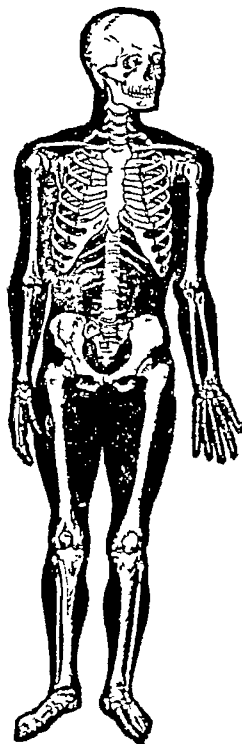
Skin cancers occur most frequently on the face, especially in people who are exposed to large amounts of sunshine *Too much sunshine can be dangerous* Outdoor workers and sunbathers need to be careful, for it is easy to develop a skin cancer Light skinned persons are even more sensitive However, cancer may occur in anyone regardless of colour or age

X ray and radium burns may also result in malignant tumours, which may occur several years after the over exposure to the radiation.

**Basal Cell Epithelioma.** This type of skin cancer usually develops in middle and later life and is most often seen on exposed areas such as the face, nose, or forehead The original tumour looks like a small pimple which enlarges slowly After a few months it looks like a shiny swelling in the skin with a hollow centre This little tumour then begins to spread over the surface of the skin Growth is slow but the cancer may be burrowing down in the deeper tissues Surgery removal of the entire tumour is the method of choice in treating this condition

**Squamous Cell Epithelioma,** also known as **epidermoid carcinoma** is more likely to develop in older people This type of cancer tends to show the natural changes due to age. At first it looks like a small patch perhaps on the lips or tongue. After a few months it may begin to grow rapidly, spreading over the surface of the skin and down into the tissues An ulcer may form undermining the surrounding skin and leaving a hard ragged edge This tumour is *particularly* dangerous. It should be removed as soon as it appears As in all other types of cancer, once the tumour is removed, it should be carefully studied by a qualified pathologist

Remember, **any sore that does not heal after two or three weeks** should be considered malignant until proved otherwise There is no home treatment that will cure a genuine cancer It is wise to have the malignancy removed without delay



# OUR BONES AND WHAT THEY DO

The skeleton or bony framework of the body is truly a masterpiece of design and engineering. It consists of over 200 bones, the number varies according to a person's age. During our younger years we have a few extra bones in the lower spine. As we grow older these fuse together forming the sacrum or base of the spine.

All of our bones are important, for not only do they provide strength and stability, but they also protect our organs. At the same time, they provide a vast storehouse of minerals, which are constantly being drawn upon to meet the needs of the body. Each bone, tailored by nature for the particular job it has to do, begins as a very small structure in infancy and grows with the body until it has reached full maturity.

Our bones are built up in a remarkable way similar to a modern steel and concrete building. The basic construction of the bone consists of a soft spiral type of reinforcing protein material which is filled in and surrounded by a complex mixture of minerals. These consist mainly of calcium and phosphorus, a veritable storehouse of mineral material. Calcium not only gives strength to the bones but also keeps the heart beating and the nervous system functioning properly. For instance, if the level of calcium in the blood should be altered *in any way, this fine balance of the body organs would be* disturbed and might lead to some serious disease.

### *Bones Beautifully Designed*

The bones of our arms and legs are beautifully designed for the work they have to do. The central portion or shaft of the bone is hollow and of just the right length and thickness, making it possible to carry far more weight than any person can lift. A hollow bone is actually stronger and lighter than any solid bone could be. This great engineering principle is often used in bridge construction and

in erecting large buildings But nature doesn t waste this valuable space These hollow spaces within the bones are filled with a delicate substance called **bone marrow** Here the red blood cells and many of the white blood cells are born

The largest bone in the body is the femur or thigh bone which extends from the pelvis to the knee. The next largest is the tibia which extends down from the knee to the foot. Both of these bones are well designed for carrying the full weight of the body, enabling us to walk, run, and jump with perfect ease The same wonderful planning is found in all the other bones of the body, including those three tiny bones within the ears that help us to hear all sounds clearly Thus every bone is perfectly suited to its job

## *Different Types of Bones*

The bones in the skull are flattened and gently curved Each is joined to those surrounding it, thus forming a perfectly shaped bowl for the protection of the brain How remarkable that each of these skull bones grows at just the right pace so that the head always keeps its shape from childhood to the end of our days, The skull bones are hard and durable, yet even they contain some marrow spaces for the production of red blood cells

The ribs are long curved, and flattened but unlike the skull bones, they are remarkably flexible, allowing us to breathe easily They provide stability to the chest and help to protect the lungs and heart The ribs also contain marrow and contribute their share of blood cells

The bones of the spinal column are very different in shape and function These spinal bones or *vertebræ* are shaped like short stubby cylinders They are very tough and each one is firmly bound to the ones immediately above and below Each spinal vertebra or bone moves only a small distance at a time. But because we have 24 of these vertebræ we can move the back in many different directions, such as forward back, and from side to side We can also turn the head neck and trunk without any difficulty

## *How Joints Function*

The skeleton must be flexible otherwise we could not move To make this possible we have been provided with special joints or

working surfaces where the bones come together Usually these joint surfaces are wider and thicker than the central shaft of the bone, as can be seen in the knee

Flexible joints consist of special tissues, such as cartilage, ligaments, tendons, and a capsule or covering for the joint. All these help to bind the bones together But for real flexibility there must be sufficient lubricant to keep the joint movable and free from pain As a rule, inflammation occurs most frequently in joints that are used a great deal, such as the fingers, knees, shoulders, and spine Most joint surfaces are smooth and hard, enabling them to carry heavy pressure when in use The capsule protects the joint from injury and helps to hold the articulating bones in place

The capsule has a soft, smooth inside lining known as the *synovial* membrane. It is well supplied with blood vessels, nerves, and lymphatic channels, all of which are important to normal function All the larger joints have also a thin layer of dense material known as *cartilage* or gristle This tough, rubbery substance, without actual blood supply of its own depends entirely upon the synovial fluid within the joint for its nourishment

Healthy cartilage is very elastic, able to recoil after any blow or pressure upon its surface But when this useful substance degenerates there may be a rough grating sound when the joint is moved Stiffness and pain may follow, particularly in the morning or after a period of rest The joint may also begin to swell, as excess synovial fluid is poured out to help relieve the pain and heal the tender inflamed joint All near by tissues, such as tendons, fascia, and muscle fibres may also be involved

### *Nature's Shock Absorbers*

To keep our backs nimble and flexible, nature has provided us with a set of special shock absorbers between each two adjacent vertebræ They are known as the **spinal discs,** composed of cartilage or gristle. They are tough and spongy and can take a great deal of strain and heavy work Without these tough shock absorbers we would soon be in serious trouble, for the delicate spinal cord leading down from the brain to the rest of the body could be quickly and permanently damaged A **ruptured** disc can be painful and should receive appropriate medical attention, as suggested on page 470

All living bones are subject to chemical changes within the body. As a person grows older, he often fails to take enough exercise, without which his bones tend to weaken. Daily exercise is essential also to keep the joints flexible, so that they will not become stiffened and deformed as in arthritis and **osteoporosis**. These conditions are more fully discussed later in this chapter.

### *When Bones Are Fractured*

When a bone is fractured or broken, that part of the body is immediately thrown out of alignment. Near by muscles go into spasm, pulling the bone fragments out of their normal position. This produces pain, and also bleeding and swelling in the area of the fracture. For proper healing, the bone fragments must be brought into correct alignment and kept at rest. Smaller bones usually heal within four to six weeks. Larger bones may take as long as four to six months for solid union.

As the fracture heals, tiny cells in the bones soon bridge over the broken fragments and create a kind of scaffolding on which new bone cells will repair the damage, provided the bone fragments are well supported in correct position. This always takes time, perhaps several months. It is wise to seek the services of a qualified physician to avoid such troubles as shortening of the bone or unnecessary swelling or pain. Different types of fractures and their treatment are fully discussed in chapter 15.

### *What is Arthritis?*

Serious deformities may sometimes occur in the bones and joints. These include tumours, swellings, and new growths. But the most frequent cause of trouble is **arthritis**. This condition occurs usually during the later years of life, although it may begin at any age. Almost everyone gets a touch of it at some time in his life. In some cases the trouble is only temporary; in others it may drag on for years.

The word arthritis means *inflammation of the joints*, but in the early stages the whole body is usually involved. One or two joints may become completely deformed, leaving the patient

A simple fracture is an uncomplicated, clean break.

A compound fracture is a bone fracture accom panied by a skin wound through which the bone may protrude

A green stick fracture is one in which the bone breaks only part way across, as a green stick *may break. This type of* fracture is usually found in children.

A comminuted fracture is one in which the bone is broken into two or more parts.



handicapped and somewhat weakened
ment the disease can be brought u
clear up

*What causes arthritis? Unfortunat*
In some cases certain germs may attack
germs that cause tuberculosis, pneumon
mation of the throat Syphilis and gon
arthritis at times, but such infections a
of powerful antibiotics Some doctors h
and badly diseased tonsils may also be
this has not been fully proved However
of any serious infection for it could ac
the body as well as the joints.

### *Rheumatoid Art*

Rheumatoid arthritis is a serious d
the joints but also the muscles, tendons,
*The true cause is not known, but the*
often in women.

Rheumatoid arthritis usually begins
ing, pain, and tenderness in the joints
and feet In this disease the joints on ea
involved at the same time The joints fe
appear red, and perhaps even contain s
phase of the disease, the patient comp
and pain. Because of the pain in the jo
into spasm

This muscle spasm creates a real
muscles, such as those that close the h
extensor muscles that open the hand
muscle spasm pulls the joints somewhat
may show the effects of atrophy or wast
of the active rheumatoid process going

free from pain and discomfort, and may feel he is cured, only to come down with another attack after some mild illness, such as a cold or some slight injury Pregnancy, however, seems to have a beneficial effect upon this condition, for reasons that we do not yet understand But rheumatoid arthritis is a serious disease that may last for many years and most patients complain of painful joints and muscles that are often spastic and tender

**Treatment** Unfortunately, we still have *no cure* for rheumatoid arthritis, but we can do much to help the patient First of all, he must understand that this is a *chronic* disease, lasting for months or perhaps years There are times when he or she may be entirely free from pain only to have the condition return after a few months respite During the painful stages it is important for the patient to have one or two **rest periods** during the day However, he must not lie in bed too long This would only aggravate the muscle wasting He should be given a **well balanced diet,** as suggested on the colour plate facing page 50 He may need one or two **aspirin tablets** every few hours to help control the pain These tablets will also have a beneficial effect on the inflammation

Some doctors give injections of water soluble gold compounds. This may be useful in the early stages of the disease, but when serious deformities have set in these injections are less effective Elderly patients with kidney or liver disease may be wiser to avoid gold therapy During a severe attack, ACTH and cortisone are often beneficial for a time. But because rheumatoid arthritis is a chronic disease, care must be taken not to use these medicines too often There are times when injections of **hydrocortisone** may be given directly into the painful joint itself This helps to control the inflammation and the beneficial effect may last from five to ten days even longer in some cases

As in other types of arthritis exercise is always important in rheumatoid arthritis The right kind of exercise will help to prevent wasting of the muscles and stiffness of the joints Gentle **massage** or rubbing of the affected muscles as described on page 104 will relieve spasm and increase the blood supply to these painful areas But the patient should also have *active* exercise, making the muscle do its own work This is most important Many different self help devices have been designed to enable the patient to perform normal activities essential to daily living



We must do all we can for a handicapped person. But at the same time he must do as much as he sensibly can for himself

*Helping a Handicapped Person*

As far as possible, a crippled person should always be encouraged to help himself If he has to use crutches, be sure they are the right length for his hands and arms Light, strong, aluminium crutches are easier to handle, and less tiring than heavier kinds Chairs should be of the right height, so that the arthritic patient can get in and out of them more easily Sliding casters under the legs of one or two chairs will enable the patient to steady himself while moving around

A crippled person may also benefit by the use of a walking-stick to which a small magnet is attached down near the end to pick up metal objects Also a hook at the end of the walking-stick may help him to do many things that would be impossible otherwise. Long handled combs help a handicapped person to comb his own hair Special handles for forks and spoons are also available to help him while eating His shoes should be well fitted and strong enough to provide steady support for walking High heels should be avoided by anyone whose balance is poor

A crippled woman should be encouraged to carry on as much of her housework as possible, in spite of her handicaps Special aids are now available to help her cook, clean sew, wash clothes, or perform her other household activities. Anyone who is handy with

tools can devise ways of applying special handles to various household articles Working in her own home will do much to restore a woman s self-sufficiency and make her feel useful once again This is an important part of normal rehabilitation

Whenever possible, a disabled man should be encouraged to go back to his former occupation Workers who are experienced and reliable are always highly appreciated by employers Those who cannot return to work should develop some useful home activity or hobby to keep their hands and fingers nimble, and to strengthen the larger muscles of the body

### *When to Begin Rehabilitation*

Rehabilitation should be started as early as possible, whether the trouble is due to arthritis a stroke, or some other type of illness Early movement will prevent the muscles from degenerating and the joints from becoming weakened and stiff The longer the patient stays in bed the more difficult it may be for him to learn to walk again **Proper exercises** in bed will keep the muscles strong and the joints active He should take as much exercise as possible, but he must not allow the muscles and joints to become too tired A graduated plan of rehabilitation and muscle training is wiser, especially if the patient has been sick over a long period of time **Deep breathing** consisting of at least ten deep breaths each hour, will help to keep the airways open and prevent pneumonia and other serious conditions.

Remember sympathy often does more harm than good, for it sometimes makes the patient feel worse Encourage him to have hope in the future and confidence in himself and in the power of Divine healing This is more important than any other medicine and is our best assurance of health in days to come.

### *Osteoarthritis*

Osteoarthritis is a chronic form of arthritis that may involve any joint but is more likely to occur in such hard working joints as the knees or fingers We do not know why this form of arthritis develops but injury seems to play some part Though women are more often affected particularly following the menopause this disease may even occur in young people

Osteoarthritis is a degenerative condition in which the cartilage within the joints is destroyed and the bone surfaces become roughened and enlarged Under X ray, the near by bone areas appear hard and dense, and the edges form spurs or lips at the margins of the joints This form of arthritis often occurs in the fingers, particularly in older women, a condition known as Heberden's nodes

This disease comes on gradually, usually with some pain in the joints But the muscles are less frequently involved than in rheumatoid arthritis which is discussed on page 458 Most of the pain is located right in the involved joint itself Many of these patients are over weight, but they do not appear to be sick Their chief complaint is **pain**, which is more severe after exercise.

**Treatment** Unlike other forms of arthritis, this type is not progressive, nor does it involve the entire body *Salicylates*, such as aspirin, should be given three or four times a day to relieve the pain If the patient is obese, he should definitely *lose weight* This will decrease the pressure on the injured joint Here is a useful prescription for rubbing into the skin over the painful joint at night just before going to bed

| | |
|---|---|
| Methyl salicylate | 1.5 cc. |
| Menthol | 1.5 cc. |
| White Petrolatum to make | 30 gms. |

Gently massage this into the affected parts several times a day, as well

You may also **apply local heat**, such as from a heating lamp or through hot packs described on page 96 This will often bring relief If the fingers are involved place the hands in hot water for four minutes and then in cold water for one minute Then alternate the hot and cold, keeping this up for fifteen minutes at a time. Repeat this treatment two or three times a day These simple home treatments will often bring relief But the patient must also be willing to follow a sensible programme of living including a balanced diet For very painful joints, it may be advisable for a physician to inject 25 mg of hydrocortisone directly into the joint from time to time This will control swelling and reduce pain

### *Fibrositis*

Fibrositis and fibromyositis are painful conditions often associated with illness or injury Usually the affected muscles are sore and tender to the touch Exposure to damp and cold are frequent causes, but any injury to joints or muscles may bring on this condition The trouble may also arise from infections of the throat Fibrositis most frequently occurs in the lower back, also in the neck, shoulders, and chest wall Older doctors often call this rheumatism'

Fibrositis begins suddenly, and the **pain** usually feels worse when the muscles are used **Fever** is often present, especially if the patient has a cold or sore throat. In such cases, the fibrositis usually clears up soon after the general infection has gone

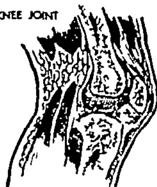
**Treatment** Simple measures, such as **rest** and **local heat,** are very important in this condition Apply hot moist packs or fomentations to the painful area two or three times a day, as suggested on page 96 This will help to control the pain **Massage** or gentle rubbing of the muscles will also help to restore the blood supply and relieve the spasm and pain, but this must be done gently for inflamed tissues are often tender

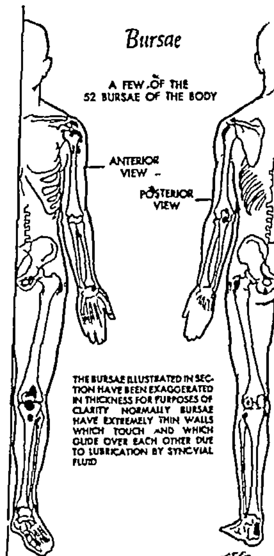
Some simple pain relieving medicine, such as aspirin may be given every four hours as needed Chloroform liniment, or the simple ointment suggested on page 462, may be rubbed into the sore areas several times a day Local injections of hydrocortisone into the sore spots are often beneficial If fibrositis occurs in the back and the patient s bed is soft place a wide plywood board between the mattress and spring This will give support to the back and may help in healing

### *Bursitis*

Bursitis means inflammation of the bursa or a small sac containing fluid Most of these little bursa sacs are found near joint cavities such as at the shoulder joint There are many parts of the body where pressure builds up between muscles, tendons, and bones, and sometimes one of these little sacs may become inflamed following some slight injury "Tennis elbow" and "housemaid knee are typical of bursitis The bursa usually lies just outside the joint Bursitis is different from arthritis for in this condition the joint itself is usually not involved However, there are times when a deep bursa




Showing left bursitis of the shoulder and knee joints. Right some of the body bursae which are soft tissue sacs located between parts that move upon one another Often they are between bones and muscles.

may actually connect with a joint, and may interfere with the function of that particular joint

The shoulder bursa lies at the joint of the shoulder itself and is most frequently involved in bursitis, probably because this joint is very

active. Every time you raise your arm, you bring the head of the arm bone close under the edge of the shoulder, and this presses on the bursa Years of wear and tear may result in degeneration, and calcium may be deposited in the bursa, resulting in calcific bursitis

**Treatment** During the early acute stage, **rest the joint** as much as possible Apply ice several times a day as needed Injections of procaine and hydrocortisone into the bursa itself may completely relieve this condition Exercise is also important **Gentle movement** should be encouraged to prevent adhesions from forming between the various structures of the joint If adhesions form and the joint be comes ankylosed, there may be wasting of the muscles through disuse

To exercise the shoulder, lean forward and swing your arm in a circle, pointing the fingers toward the floor For better results, hold a bottle or some other object in the hand while carrying out this exercise Apply hot and cold packs as suggested on pages 96 100 This will increase the blood supply to the painful areas and will also aid in the healing Some suitable analgesic, such as aspirin, two tablets every four hours, will help to control the pain during the acute stage

**Chronic bursitis** may sometimes follow the acute condition, especially when proper treatment has not been given Large swellings may be seen around the elbows, especially in cases of gout It is also important to rule out other conditions, such as rheumatoid arthritis syphilis, and tuberculosis of the joint As mentioned above, injections of procaine and hydrocortisone may be given directly into the in volved bursa This will help to break up the calcium in the bursa. Some doctors give ultra-sound therapy, and others treat chronic bursitis with X ray But home treatment using hot packs may also help to relieve this troublesome condition Muscle-building exercises should be carried out several times each day

## *Wryneck*

Wryneck or **torticollis** is a condition in which the head is drawn forward or to one side It is usually due to spasm or shortening of the muscles on one side of the neck The condition may come on suddenly, but *is likely* to be more *gradual* There may also be repeated jerking movements of the head, and in some cases there is an underlying psychiatric disturbance as well

**Treatment** Everything must be done to encourage relaxation of the spastic muscles **Hot moist packs,** as suggested on page 96 should be applied to the neck One or two aspirin tablets may be given every few hours to control pain and to relax muscles. Gentle massage or rubbing of the muscles should be administered several times a day This will increase the blood supply to the involved area and help to relieve the muscle spasm The patient should be reassured, because in most cases he has little to worry about once the acute stage is past Some patients have benefited by using medicines containing belladonna Very severe cases may require surgery

*Low Back Pain*

Most backaches seem to begin while bending forward to pick up some object from the floor The pain usually comes on suddenly without warning, and it may be very difficult to straighten up to a standing position again In most cases it is felt either in the middle of the back or lower down on one side If a spinal disc is involved, the pain may radiate down the thigh and leg along the sciatic nerve on that side The most common cause of backache probably arises from failure to get enough exercise to keep the muscles of the back strong and healthy Flabby muscles then produce a wobbly spine, followed by pain, spasm, and misery especially if a disc is ruptured.

Weakened muscles and damaged discs are not the only causes of low back pain There are many more, such as menstruation, pregnancy, female disorders, kidney and bladder conditions as well as rectal and prostatic diseases All of these are discussed elsewhere in this book Usually these bring little or no pain on moving the back. In this they differ from a weakened back in which movement is always painful

Another condition known as **osteoporosis,** or thinning of the bones is often seen in elderly people. This may cause collapse and wedging of one or more of the vertebræ, owing to the weakening of the bones which often occurs in the later years of life. Such conditions need careful medical management to prevent further deformity and pain Many patients suffering from the disease have benefited by controlled use of male and female hormone tablets or injections They should be given a good diet, including sufficient protein and calcium to restore the tissues of the bones.

Arthritis of the spine is another common cause of low back pain The treatment for this is outlined on page 479 There are times when **cancer** may also attack the bones of the spine, having spread, or metastasized, from the breast or some other part of the body This may cause more or less constant pain

**Fractures** of the spine often result in severe back pain. Such conditions should be treated by a qualified surgeon who can prescribe any appliances or supports that may be needed

*Avoiding Back Trouble*

Most backaches could be avoided by following a few simple rules.

1 **Lift with the legs,** not the back Bend your knees when you wish to pick up something heavy Keep the back straight.

2 **Avoid overexertion.** A person who is not accustomed to heavy lifting should not try to carry too much at a time.

3 **Exercise regularly** Don t overdo a good thing like exercise Taking a moderate amount regularly will do more good than strenuous exercise on rare occasions.

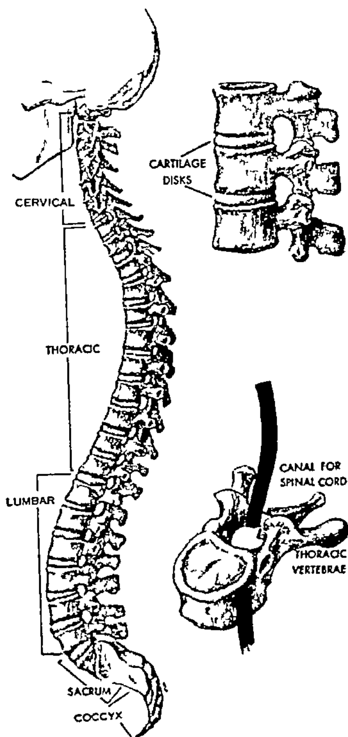
4 **Change your position frequently** Avoid cramped sitting positions that bring on fatigue Move around Keep flexible

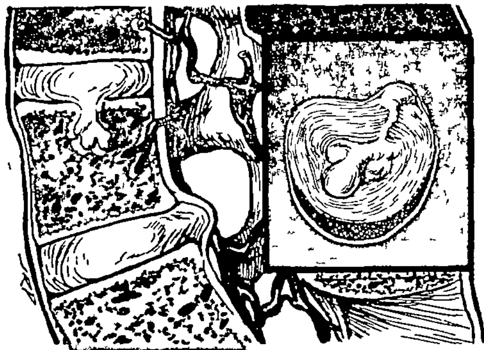
5 If you do have back trouble **do not worry** With proper treatment your back will soon be better

*Sprained Back*

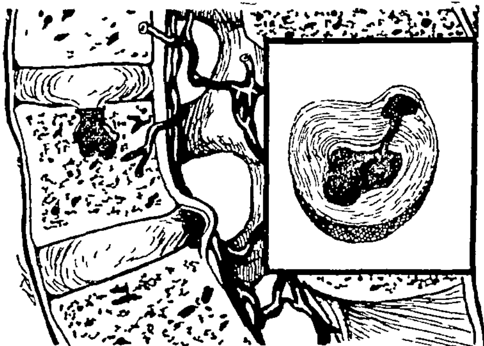
A sprain is the result of a bending or overextension of a joint beyond its normal range of motion Any unexpected twisting of the body, such as in a car accident may cause a badly sprained back. But merely bending over to pick up one s shoes may also produce a sudden ' catch ' of pain in the middle of the back, making it difficult to straighten up again During the next hour or two the pain becomes worse and the near by muscles go into spasm All movements must then be restricted to prevent further pain

**Treatment** Keep the patient in bed in the position of greatest comfort. Give one or two aspirin tablets every two or three hours to relieve pain Avoid the use of codeine unless the pain is very severe. **Hot packs** applied locally to the injured back will help to relieve


CERVICAL
THORACIC
LUMBAR
SACRUM
COCCYX
CARTILAGE
DISKS
CANAL FOR
SPINAL CORD
THORACIC
VERTEBRAE



Normal spinal vertebrae and discs.



Ruptured spinal disc (red) pressing on spinal cord and nerve roots, causing severe pain.

the pain and tenderness This treatment should be repeated several times a day **Soma,** a new type of muscle relaxant, will also help to shorten recovery time It should be given four times a day

Many doctors inject about 10 cc. of procaine and 50 mg of hydrocortisone into the painful area This usually brings prompt relief Place **bed board** or sheet of plywood between the mattress and spring If the back seems weak, or the X ray shows some old deformity, special surgery in the form of a **spinal fusion** may be needed to create a solid bony bridge over the involved area

**Regular exercise** is also important. As soon as the pain begins to subside, the patient should lie on the floor with his hands behind the neck and raise the legs high in the air, first one at a time, then together Repeat this a dozen times each morning and night. Careful bending from side to side and also rotating the upper part of the body while *holding the lower part steady will help to strengthen* the back and keep the muscles strong and vigorous At the same time it will restore tone to all the ligaments, tendons, and joints

### *Ruptured Disc*

Between all the vertebræ or spinal bones there are tough elastic *discs about half an inch in thickness These spinal discs* help make the back strong and flexible But sometimes they are placed under such heavy strain that one actually ruptures, forcing the soft fluid centre of the disk to ooze out and allowing the tough outer rim of cartilage to press on the roots of the spinal nerves The sciatic nerves leading to the thighs and legs are most often involved The result is pain, not only in the back, but along the whole course of the sciatic nerve down the thigh and into the leg and foot Muscles in these areas may then become **spastic,** and walking may be difficult There may also be **numbness** and **tingling** in the affected area

**Treatment** Keep the patient in bed during the early phase Apply *local* **heat** *and* **massage** *to the back and lower extremities, as outlined* on pages 96 104 Rub some suitable pain relieving lotion into the painful area as suggested on page 462 Merely keeping the patient quiet and in bed for a time may be all that is necessary to relieve pain and heal the injured area But in all such cases it is wise to place a *board or* sheet of plywood between the mattress and spring to prevent further

strain on the back When the patient is up he should wear some kind of **brace** or support to the lower back, or perhaps a corset.

If the condition tends to return, it may be wise to have the disc completely removed by surgery This frees the nerve tissues from undue pressure. *This is a serious operation and should be attempted only by* a surgeon who is fully qualified for this type of procedure

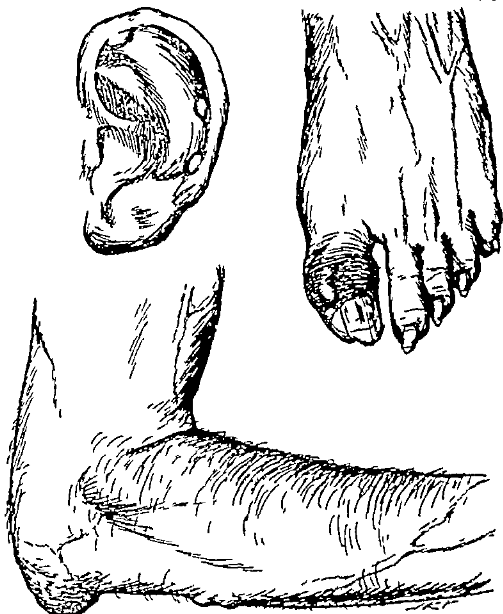
### *Gout and Gouty Arthritis*

Gout is a strange condition which is not in any way related to other forms of bone disease It is really a metabolic disorder, and is discussed in this chapter only because of the very painful type of arthritis that is often associated with it Gout occurs most frequently in males, usually in middle life The true cause is still somewhat of a mystery

Gout tends to run in families In all cases there is too much uric acid in the blood This excess uric acid is deposited in some of the soft tissues of the body and also around certain joints This results in painful swellings, known as **tophi,** which are most likely to develop in cartilage, such as in the outer ear They also occur in the synovial membranes of such joints as the knees and ankles and particularly the big toe and also in various tendons and bursæ Even the ends of some bones may be invaded by these tophi

**Acute gouty arthritis** An acute attack of this disease usually begins without warning, perhaps owing to wearing ill fitting shoes or tight gloves It may also follow a heavy meal, or overindulgence in rich foods or alcohol It sometimes comes on after a surgical operation, or after an acute infection of the nose or throat. Severe pain may develop at the base of the big toe, usually in the middle of the night Several joints, such as the ankle or knee, may also be affected at the same time.

The pain becomes more severe as fluid collects in the joint space and in the surrounding soft tissues. The skin is tense, hot, and shining and is of a red or purplish colour The patient is likely to have chills and fever, a rapid pulse and feelings of general weakness Severe attacks may continue for several weeks, milder attacks usually last only a few days. Repeated attacks may occur each year, gradually becoming more severe and prolonged



*Gout strikes different areas of the body such as the ear elbow and forearm.*

In time other joints in the hands, feet, or lower spine may also be involved **Kidney conditions** may greatly complicate the picture, particularly in cases not receiving adequate treatment *Albumin* may be found in the urine. There may be **pyelonephritis**, and evidences of kidney failure.

*In most cases there is a* ***family history*** *of gout which can be traced* back for several generations. Some patients pass **kidney stones** con

sisting largely of various chemicals related to uric acid Any person suffering from acute joint pain who is otherwise healthy should be tested for gout. If he has pains in the joints, and uric acid is elevated in the blood stream, he should be given colchicine If this medicine brings relief, the trouble is most likely due to gouty arthritis There are times when gout may simulate rheumatic fever, but this disease is more likely to attack the larger joints, while gout tends to involve the smaller joints.

**Treatment** Gout is a **chronic** disease During an acute attack it is best to **keep the patient in bed.** Give him **abundant fluids,** particularly water and fruit juices He should be given a soft diet. The affected joints should be put at rest under a protective cradle, as pictured on page 81 If there is much swelling in the joint, such as the knee, it is best to have the physician remove the excess fluid by needle aspiration After this is done, 25 to 50 mg of hydrocortisone should be injected into the knee joint and left there This will help to heal the inflamed tissues **Colchicine** should be given by mouth, 0.5 mg tablet every two hours until complete relief is obtained It may require eight to twelve tablets to bring the acute attack under control If nausea or vomiting occurs, it means that the patient has had enough medication for the present. **Prednisolone** tablets, 5 mg, may be given three or four times a day for the next four days to aid in healing



Gouty arthritis of hands and fingers resulting from abnormal amounts of uric acid in the system. Patients suffering from this disease must be on a carefully regulated diet.

Drugs for gout should be prescribed by a doctor

**Diet** is most important in this condition The patient should avoid all rich foods, particularly sardines and organ meats such as liver, kidney, and sweetbreads These all contain extra uric acid which the body has to eliminate

The patient **should not use alcohol** in any form at any time. Probenecid (Benemid) should be given daily, the dose being 0.5 gm. tablet each morning, or perhaps several times a day during painful periods. If the patient is passing uric acid stones from the kidney, he should take one sodium bicarbonate tablet, 0 6 gm., with each Benemid tablet

Badly deformed joints can now be corrected by appropriate surgery, and all unsightly swellings or tophi can and should be removed by an orthopædist or a plastic surgeon.

*Painful Feet*

**Flatfoot** is very common and is usually due to some strain on the arches of the foot. Pain may be felt in the instep and around the ankle, and may even radiate up into the calf muscles and to the knee. In treating this condition, use alternating hot and cold **foot baths**, and rest the feet as much as possible

**High Arches** In this condition pain is felt under the ball of the foot and calluses may form in this area Frequently there is shortening of the Achilles or long tendon extending down the back of the leg from the calf to the heel This shortening throws the body's weight forward on the foot *High arches can often be helped by attaching a* patch of sponge rubber across the inner sole of the shoe, just behind the part where the foot is most tender Alternating hot and cold **foot baths** several times a day will also help Properly fitted shoes are most important in this condition

**Bunions** have been common wherever people wear shoes that are too narrow or too short. Prolonged pressure against the side of the big toe may inflame that part of the foot and involve the nearby joint and the surface of the bone. Bunions can be prevented by wearing wider shoes As in other foot conditions, **hot and cold soaks** to the feet several times a day will help, especially during the early stages of this condition If the joint is much deformed, it is best to have the toe straightened out by surgery

**Painful heels** usually arise from injuries to the feet or from wear

ing poorly fitted shoes. Arthritis may also occur in the ankle or foot, with bony spurs arising from the surfaces of the bones under and behind the heel Painful heels can usually be prevented by wearing proper shoes of the right height. Bony spurs may be removed by surgery if other means of treatment outlined are not successful

### *How to Care for Your Feet*

To properly care for your feet follow these simple rules

1 **Bathe your feet daily** and more often if needed Dry thoroughly Use foot powder for any skin irritation

2 **Never wear the same socks or stockings twice** without washing them. Change them if they become wet with rain or perspiration

3 **Cut toe-nails straight across** so that the edges are not buried under the flesh

4 **Select the right type of shoes,** preferably leather Never wear high heels more than a few hours at a time. Do not do heavy work in light slippers Wear a strongly made shoe that will support the foot.

5 **Be sure you wear the right size** of shoe, socks, or stockings. They should be at least **half an inch longer than your** longest toe

6 **Exercise your feet with your shoes off** Wriggling the toes and elevating the feet will aid circulation Bend your toes over some object, such as the edge of a book Pick up a pencil with your toes. Repeat ten times to strengthen the muscles.

7 **Walk with your feet pointed straight forward** This will aid your posture It will give you better balance.

8 **Do not be your own doctor** If you have real foot trouble, consult a foot specialist. This is the best way to avoid serious foot trouble.

### *Bone Infections*

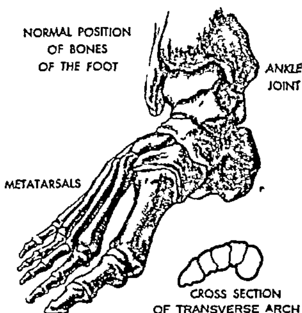
**Osteomyelitis** is a serious infection of the bones, most often due to staphylococcus and streptococcus germs. These germs gain access to the bone either through the blood stream or through some injury such as a compound fracture These infections are serious and often require extensive treatment, including surgery Osteomyelitis usually



High-heeled shoes do not promote foot health. Wear them only a few hours at a time

begins suddenly The patient may develop a high fever and complain of tenderness over the point of infection Movement of the near by joints may be painful and difficult

**Treatment:** Antibiotics such as penicillin should be given at once. Broad spectrum antibiotics, such as Terramycin or Achromycin, should also be given, one or two capsules three or four times a day, particularly if the patient is sensitive to penicillin These medicines should be continued as long as the patient has any pain, and for at least a week after the temperature has become normal and other local signs of swelling and tenderness have disappeared Surgical




CROSS SECTION
OF TRANSVERSE ARCH

LONGITUDINAL ARCH

EVEN DISTRIBUTION
OF WEIGHT

POSITION OF
FOOT BONES IN
HIGH-HEELED SHOES

WEIGHT UNEVENLY DISTRIBUTED
IN HIGH-HEELED SHOES

Drawings illustrate the normal *position of the foot*, and the unnatural position it assumes when high heels are worn. When the foot is in a normal position the weight *of the body is distributed* evenly over its full length. When high heeled shoes are worn the weight is thrown on the midpart of the foot.

intervention may be necessary, both to identify the organism, and also to drain the abscess. Patients with osteomyelitis are best treated in hospital

*Cancer of the Bones*

Many different types of tumours may arise in bones, but fortunately they are all rather rare. However, cancer occurring in the breast, prostate, thyroid, lung, or kidney often spreads to the bones through the process known as **metastasis.** The most common symptom is pain in the affected bone. In most cases the bone tumour is first discovered by routine X ray

As in all other conditions involving cancer, a correct early diagnosis is most important. Most non malignant tumours affecting the bones can be treated or even removed. Malignant tumours affecting the bones are more serious, but some are highly sensitive to X ray therapy, and these can often be kept in check by this means Some of the newer chemicals such as RADIOACTIVE PHOSPHORUS ($P^{32}$) are also proving of value, and better ways of treating cancer will no doubt be found in future.

**Multiple myeloma** is fortunately rare. This tumour always carries a grave outlook or prognosis. It is more common in men and usually begins in the late fifties. The patient complains of pain in the chest or lumbar spine, often aggravated by motion or deep breathing Pathologic fractures occur in this as in other bone tumours, and there may be bleeding from the nose and gums. Eventually the typical signs of a malignant wasting disease begin to appear, and the kidneys fail owing to infection

X-rays of multiple myeloma show characteristic punched-out lesions in the bones, especially in the spinal column The patient suffers from **anæmia,** due to abnormal formation of the red cells. Albumin appears in the urine followed by **casts** and red cells Once the disease is fully developed, most patients die within three years Unfortunately, we still have no chemical or drug that will completely reverse this picture. The patient must be kept comfortable by the use of suitable pain relieving medicines These should be prescribed by the family physician and administered every four to six hours as needed Cortisone products have given temporary relief in some cases The patient should wear a **back brace** when standing and should be given transfusions to combat severe anæmia

*Rheumatoid Spondylitis*
(Marie-Strumpell disease)

This is a type of rheumatoid arthritis that largely involves the small joints of the spine. The patient, usually a young man, first notes a mild backache which comes on from time to time, gradually becoming more or less constant. Later the spine loses its normal flexibility and becomes fixed and unmovable The patient now has a characteristic "bamboo spine The disease usually begins in the lower part of the spine and later involves the upper areas where the ribs and the vertebræ are joined in the back This finally interferes with normal expansion of the chest, so that the patient finds breathing more difficult

**Treatment** It is important that the patient sleep on a **firm, flat mattress,** so that the spine will become fixed in a normal posture He will then be able to live a more or less normal life Pain can be relieved by aspirin, Darvon, and other pain relieving drugs These also have a beneficial effect on the inflammation Cortisone products may be tried, but in many cases these are not too successful Phenylbutazone (Butazolidin, 100 mg ) taken one or two times a day will help to relieve this condition **X ray therapy** is also beneficial although neither X-ray nor Butazolidin will actually cure the disease **Hot moist packs** to the spine and abdomen as suggested on page 96 will help to relieve the muscle spasm The patient should follow a good dietary programme and try to live as normal a life as possible.

# NERVOUS DISORDERS

Every highly complex machine must have a control centre—some place where all important decisions are made and where the activities are co-ordinated For instance, a large jet plane has powerful engines to carry it through the air, and luxurious space for the comfort of all the passengers The plane is also well-equipped with food compartments, so that delicious meals can be served by charming hostesses who are constantly watching over the welfare of all on board. But while the plane is in flight, there is one spot where all the vital decisions are made. You will find it up front where the captain, his co-pilot, and the navigation officer are hard at work During a long flight the passengers may relax and rest, but these men are always on duty, day and night, as long as the plane is in the air

### *Human Control System*

So it is with the human body We have many important organs, such as the heart, lungs, kidneys, and liver, all hard at work—not to mention those fabulous little endocrine glands, such as the thyroid, pituitary, adrenals, and many more. All of these are necessary in keeping us alert and healthy Other parts of our bodies, such as our eyes and ears are constantly at work keeping us informed of what is going on Our digestive organs utilize the food and provide us with energy to keep going at our best. Our hands are forever active doing what we want done, and our legs and feet are busy carrying us wherever we want to go

Over all this remarkable machine known as the human body we have a most efficient nervous system, consisting of the brain the spinal cord, and also the autonomic nervous system. This great nerve centre is always on the job ever alert to protect us from danger, and to guide us in all we do

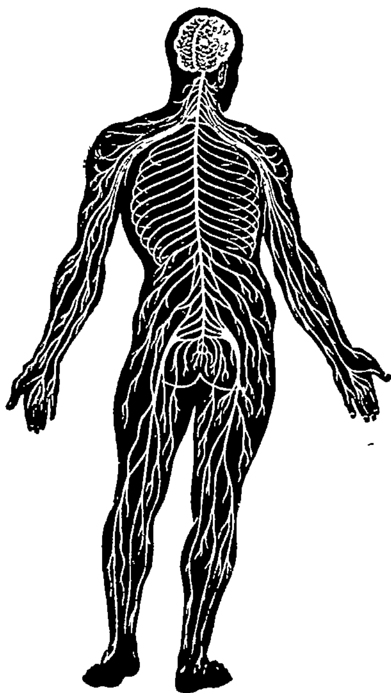
Our most important decisions are made in the brain, some of them quite automatically, others only after careful consideration Here are the centres of memory, reason, intelligence, and understanding Here we decide what is right and wrong, what is wise or foolish, what is best and what is not Once we lose this ability to think and reason, we are little more than animals Intelligence and understanding are the chief attributes that set man above the rest of the animal kingdom.

### *How We Think*

There are many stronger animals in the world, but only man has the ability to reason things out for himself, and to set down his thoughts on paper for others to understand The power of thought is a complex phenomenon, far beyond our capacity to fully understand Even with the most delicate of modern equipment, we still have much to learn about what is actually going on in the brain

So far as we can determine, thought is an electrical process that depends on many different parts of the brain To make this possible, all these various parts must work smoothly and harmoniously at the same time. All our thoughts are built up to a large extent from our memories from scenes or ideas we have previously visualized and experienced For instance, we are aware of what we see, hear, and feel right now, only because of our previous memories which have been stored within the brain ready for instant recall the moment we need them

Memory is of the greatest importance, for without it we could never learn, nor could we understand what we see and hear Our ability to store memories and use them at the right time enables us not only to understand, but also to *transmit* our ideas to other people Thus we depend upon memory to guide us in all that we do But we must weigh and consider each situation, and decide what is best for us at any particular time Prolonged experience brings maturity of thought, largely because our memories of the past help to guide us in our present decisions A young child is at a great disadvantage, for his memories are not fully developed For his own protection, he must be guided by those who are older and whose judgment is more reliable.



The Nervous System.

### *Two Types of Memory*

We have two types of memory, one is *temporary*, and the other is more permanent We use both all the time but usually in different ways. For instance, many times a day we have to remember certain things such as when to get up, when to eat, what to buy, where to work, and when to go to bed Such memories may last only a few minutes They are more or less temporary, and once we have attended to the matter, we are only too glad to forget them.

Permanent memories, such as our name, age, sex, home address, and nationality, remain with us all the time. Most of these memories are formed in childhood, or perhaps after some important event. They are more permanent, probably because of actual changes within the electrical circuits of the brain itself Thus the last thing an elderly person remembers may be some childhood event that happened seventy or eighty years before The earlier these memories are formed, the more permanent they seem to be.

The ability to remember is probably our most important asset. Without it, we are hopelessly lost and confused This is what happens when a person has a stroke or some other injury to the brain

Just now you are reading this book But you can understand what is printed here only because you have already stored in your mind the meanings of letters, words, phrases, and whole sentences You read rapidly, and as you do so, the memories flash through your mind as vivid pictures take shape within your imagination This is why we all love to read a thrilling story

But the thought processes do not stop here. These mental pictures stimulate other memories, linking one thought with another until we eventually have a complete picture of some important topic, and from this we make all our important decisions in life. We analyse the information, weigh it, and carefully evaluate it, then decide how and where to use it. All these reactions are taking place right now as you read, think, and study And thus your whole life is shaped by memories of the past and by your ability to reason and think.

### *How Animals Communicate*

Animals have this ability to some extent, but only in a simpler form. Some animals are able to transmit information to others of

their kind by scent, scratch marks, and various sounds, but not to any great degree Thus a hen will sound an alarm and immediately her chicks will take shelter under her wings Many animals have similar reactions

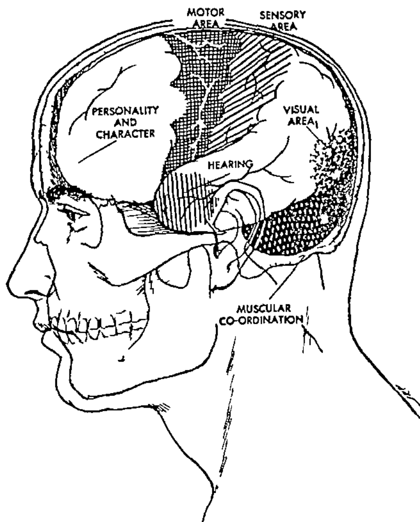
Bees have a more complicated means of communication For instance, a bee may find a particularly attractive flower growing some distance from the hive She then comes back and performs a certain dance By this means she informs the other bees where to go for honey This is remarkable in such a small creature Most other members of the animal kingdom do not have this ability to transmit information from one to another They live mainly by instinct.

But when we come to man, we are amazed at his ability to reason, and to communicate his thoughts by audible sound. Even more remarkable is his ability to write down these thoughts in readable form for others to understand Such ability makes possible the accumulation of knowledge and naturally sets him above the rest of creation. Consider the amazing inventions of our modern world in the great fields of space travel and electronics today Truly there is no limit to what the healthy human mind can accomplish when given the chance.

### *Why Some People Fail*

However, not every baby born into the world has the same capacity for success. Much depends upon the arrangement of genes within that first tiny enbryonic cell, the fertilized ovum The environment in which he grows up will make a vast difference. And even more important will be the use he makes of the talents and opportunities given him. We cannot blame our ancestors for all our failures. The real responsibility often lies within ourselves Shakespeare understood this so well when he wrote, "The fault, dear Brutus, is not in our stars, but in ourselves that we are underlings" How true! Our own mental laziness is only too often the real reason for our failures in life.

Disordered thinking is so common today Sometimes it is the result of disease. At other times it springs from bad habits of living or perhaps from factors beyond our control. The brain and nervous system are so easily damaged and may even be destroyed by certain




Control centres of the brain, showing areas where sight and sound are recognized, also areas that control thought and personality

poisons and injuries that are often the result of our own carelessness. This chapter deals with some of the more important of these conditions Some are inevitable, others may have been inherited But most of them arise from our own foolish ways of living

### *Brain Waves*

All living tissues produce some kind of electrical waves. These waves can now be measured by delicate instruments. The best example of this is seen in the electrocardiograph, an instrument that measures the electric currents produced by the heart muscle itself. Other tissues also produce waves, although in different form and rhythm. All of these have a special meaning of their own, and all are affected by disease.

The brain also produces waves—several different kinds of them. These can be graphically traced on a rapidly moving strip of paper, known as the **encephalogram**. The shape of these waves varies considerably, depending upon the degree of activity within the brain itself. These brain waves will also be different when a person is awake or asleep, probably because all the brain cells are not at work at the same instant.

We still have much to learn about waves and their meaning in various types of nervous disorders. However, brain wave studies are most valuable in investigating the different types of epilepsy and in trying to find the cause of the trouble. Brain wave studies may also reveal the presence of tumours and other lesions within the brain itself.

### *Pain*

Nerves are found in all parts of the body. Some carry electrical impulses to the muscles, telling them how and when to move. These are known as *motor* nerves. Others carry sensations back to the brain. These are referred to as *sensory* nerves. Thus we can tell when we are lightly touching an object, or are exerting heavy pressure against it. We can also tell whether the thing we are touching is warm or cold. All of these sensations are carried by different nerve fibres. But the fibres we are most concerned with are those that carry the sensations of pain, for pain is one of nature's important warning signals, letting us know that all is not well.

Pain can be felt in almost all areas of the body, but in some parts the pain is more likely to be severe. One should never be satisfied just to relieve pain. There is always some *underlying cause* that should be investigated. Some people have a lower pain threshold than others. This means they are more likely to feel pain. Much will

depend upon the nervous background of the individual and whether he has ever experienced this sort of thing before.

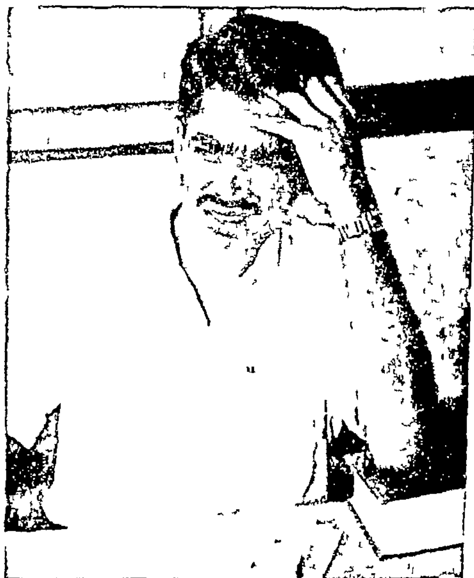
There are many different causes of pain in the body For instance, a pain in the chest might be due to heart disease, arthritis of the chest wall, radiculitis (neuritis of the peripheral nerves), various lung conditions, such as tuberculosis, pleurisy, pneumonia, and even tumours of the lung Pains in the abdomen might arise from a diseased gall bladder or appendix, or from a peptic ulcer or a diseased pancreas, or from a blocked blood vessel, intestinal obstruction, or conditions affecting the liver, spleen, kidneys, ureters, and many more Pains in the extremities may be due to arthritis, fibrositis, myositis various injuries, or perhaps chemical changes in the blood stream

Never forget that pain is an important sign of trouble within the body It should never be neglected Nor should one be tempted to take some simple pain killing medicine and forget the discomfort. This is particularly important if the pain tends to recur A careful physical examination should always be done. And even though nothing may be found by the doctor, you at least will have done your part to be sure there is nothing more serious

### *Headache*

Headache is one of the most common of all symptoms afflicting the human race Most headaches are more or less transient—here today and gone tomorrow But some seem to recur frequently over periods of months or years. Such headaches may be due to a wide variety of causes, such as various tumours, infections, head injuries, high blood pressure, eye conditions, infections of the nose, throat, and ears, and many more However, most headaches have no organic cause. Many are due to megrim or some psychological disturbance resulting in a tension headache. One should never assume that his headache is due to some serious disease, for most headaches are functional and not related to any organic changes in the brain Even eyestrain is a far less common cause of headache than many people suppose.

Strange as it may seem, the brain itself is not sensitive to pain. This means that most headaches are not due to any actual damage within the brain itself However, any stretching or pressure on the



A severe throbbing headache should always be thoroughly investigated. There may be some hidden disease.

coverings of the brain or the large blood vessels within the head will *most certainly produce a severe pain or headache.* Any inflammation within the head, such as occurs in meningitis, will cause extreme pain over the entire head. Such causes are extremely rare today. A tumour growing within the head may press upon the meningeal covering or dura. This causes a severe headache, which is usually felt on the side of the head where the tumour is located.

### *Megrim Headaches*

Megrim headaches are among the most common forms of headache today In most cases they come on when a person is either under intense nervous strain or when the tension suddenly subsides and he takes a day off This type of headache is often preceded by **flashes of light** which are seen at the sides of one's vision This is most likely to be a one sided headache, and there may be numbness and tingling on that side of the face or body Some patients complain of a **blind spot** in their vision. Megrim is so common that one person in every ten has it at some time or other It is most common in early adult life, women being more frequently affected Often there is a history of megrim headache in the family Fortunately, this type of head ache usually begins to subside after the age of fifty

Megrim attacks are often preceded by short periods of **depression, irritability, restlessness,** and **loss of appetite.** These symptoms tend to disappear just before the headache comes on, or they may continue and even increase the pain. This type of headache usually follows a definite pattern In one attack the right side of the head may be involved, in the next perhaps the left. In many cases there is **nausea, vomiting,** and the extremities may *feel cold,* and the patient desires just to be left alone Careful observation of the blood vessels on the side of the head will show that they are prominent and pulsating

The attack may last for hours or days at a time Some patients may have it daily, others at odd times, and still others, perhaps only once or twice in several years Megrim headaches are usually thought to arise from some reflex spasm or tension in one of the arteries lead ing to the brain itself This reduces the normal flow of blood to that area Just above the spastic portion of the vessel the walls of the artery lose their normal tone and become greatly dilated. This causes intense pulsations and stretching of the walls of the vessel, producing acute pain and headache. This is the theory No one knows for sure.

**Treatment** In the early stages, some simple pain relieving medicine such as **aspirin** may be given every two hours as needed In more severe attacks, ergotamine tartrate should be given, but this is effec tive only when taken in the early stage before the headache has lasted two hours The usual dosage of ergotamine tartrate is 1 0 cc given

by injection just under the skin. This may have to be repeated in one or two hours if necessary Ergotamine tablets containing caffeine, such as **Cafergot,** are also valuable, provided the patient is not vomiting The usual dose is two tablets, given at the beginning of the headache, with one additional tablet each half hour up to a total of six tablets, or until relief is obtained Ergotamine tartrate is also available in the form of **rectal suppositories** D H.E 45 is another form of ergotamine which is useful in treating an acute attack.

*Treating a Sick Headache*

The best treatment for a sick headache is to *prevent* it from coming on Megrim headaches always arise from the stress and strain of living This evidently builds up some kind of electrical storm within the brain, and from there the trouble may spread to the stomach and intestinal organs Here are some suggestions for treatment

1 **Do not be quite so exacting** with yourself and with others. Plan your work well, but don t fret or worry when things go wrong It may not always be your fault.

2 **Get plenty of sound sleep each night.** Also, take a short nap in the daytime if you can This will help to relieve tension and restore your sense of well being

3 **Beware of habit forming drugs.** These may bring quick relief, but they do not remove the cause It is so easy for a person to become addicted to powerful drugs Better leave them alone

4 **Avoid things to which you are sensitive,** such as bright lights, loud noises, tobacco smoke, strong perfumes, heavy traffic, and perhaps even some of your neighbours. Don't allow yourself to exceed your own limits.

5 **A hot foot bath** for about twenty minutes will often relieve severe headache. An ice-cold cloth to the head will also bring relief and make the hot foot bath even more effective

6 **Avoid nervous tension.** Get sufficient exercise out of doors, especially *walking* This will relieve tension and help to prevent head aches Gentle *massage* to the neck and back will often bring relief

7 **Keep calm and quiet.** You cannot always have your own way, even at home. Remember, a happy attitude toward life is one good way to prevent these tensions from coming on in the first place.

So, try to face your problems bravely, without fear or weakness. A calm, quiet atmosphere will bring peace within yourself, and with others, and with God

### *Tension Headache*

Tension headaches are similar to megrim in many respects, al though the location of the headache may be somewhat different and the cause is more obvious. Prolonged tension often seems to produce a spasm of the muscles in the back of the neck, particularly in certain people This muscle spasm draws the tissues over the surface of the cranium very tight, so that the pain is felt not only in the back of the neck, but also over the top and front of the head This is a steady, aching type of pain Usually there is no nausea, vomiting, or flashing lights, for the problem does not appear to affect the brain but is due to external causes The treatment is similar to that outlined for megrim and sick headaches, as mentioned on pages 489 and 490 It is most important to avoid emotional stress and be sure to take sufficient rest Tension headaches are warning signals from nature which one cannot afford to ignore.

### *Alcoholic Headache*

Many people suffer from a severe headache due to "hangover" after taking large quantities of alcohol Alcohol is toxic to the tissues and directly irritates the meninges or coverings of the brain, thus causing pain in the head The alcohol also dilates the arteries in the brain, and this in turn produces a pain not unlike that of megrim Naturally the best treatment for this type of headache is to avoid the excessive use of alcohol in any form Other than this, bed rest is advisable until the crisis has passed

### *Headache Due to Constipation*

Some people are particularly susceptible to this type of headache. It appears to arise from absorbing toxic products from the colon. The best treatment is to take sufficient bulk and roughage in the diet, plus at least six to eight glasses of water per day to provide both bulk and

lubrication of the bowel Some mild laxative may be necessary in some cases, but this should be avoided as a general rule.

### *Headache Due to High Blood Pressure*

Many people have a tendency to develop a headache when the blood pressure rises beyond the normal level The reason for this is not too clear, but it may be due to the increased pressure within the smaller arteries and other blood vessels within the brain High blood pressure and its treatment are more fully discussed on page 247

### *Sinus Headache*

Some of the nasal sinuses lie very close to the brain Any inflammation within these sinuses may produce a rather severe type of headache. Sometimes the headache comes on gradually, at other times rather quickly There may also be marked *postnasal discharge* or dripping down into the throat, as well as fever, loss of appetite, dizziness, and loss of the normal sense of smell A feeling of toothache might also be present if the maxillary sinuses are involved During the early phase the temperature may rise to 102° Anything higher than this suggests further complications, such as otitis media or inflammation of the middle ear In chronic sinusitis the headache is less severe and the patient may complain of recurrent colds. Sinusitis and its complications are discussed on page 403

### *Headache Caused by Eyestrain*

This type of headache may be due to the body s attempt to gain clear vision Within the eyeball the small ciliary muscles control the shape of the lens of the eye This enables us to focus our vision on the object we are looking at. Prolonged contraction of these tiny muscles can be a cause of headache due to "eyestrain' Also, the muscles that move the eye (extraocular muscles) may go into tension, particularly if the muscles controlling one eye are not balanced with those on the other side. This imbalance may cause blurring of vision so that the head may have to be held in a certain position in order to focus the vision This in turn causes chronic contraction of the muscles of the neck, resulting in a headache

If the eyes are exposed to a very bright light, a headache may develop lasting twenty-four to forty-eight hours, possibly due to irritation of the delicate tissues in the eyes Such a headache may last from one to two days. Looking at the sun for only a few seconds may actually burn the retina, and cause a severe headache. The proper treatment for headaches arising from eyestrain and other disorders of the eye can be prescribed only by a specialist in eye conditions, or in other words, an ophthalmologist

*Neuritis and Neuralgia*

**Neuritis** Neuritis means "inflammation of the nerves," possibly involving a single nerve or a group of nerves At times several different groups in various areas of the body may be involved, a condition referred to as **polyneuritis** Neuritis may arise from a blow, a penetrating injury, a bad bruise, or heavy pressure over a nerve trunk. Dislocations and fractures of the bones may result in various forms of neuritis. Tumours may also bring this about Any violent muscular activity or over extension of the joint as in a sprain may injure the nerves and cause neuritis, the pain being felt along the course of the nerve.

Excessive vibration from machine tools, such as air hammers, may eventually produce this same inflammation of one of the nerves So will a cramped posture as in gardening Certain infections, such as leprosy, tetanus, and tuberculosis, may sometimes produce pain in the nerves Herpes zoster or **shingles** is a form of neuritis arising from some virus infection involving certain nerves The pain from shingles may continue for months or even years This condition is more fully discussed on page 495

Certain heavy metals, such as lead, arsenic, mercury, bismuth, copper, and manganese, may at times cause a toxic neuritis This is also true in such non metallic poisons as **alcohol** carbon monoxide, carbon tetrachloride, benzene, and also certain drugs. Vitamin deficiencies, particularly when adequate amounts of vitamin B complex are not present in the diet, may produce polyneuritis. This is often seen in alcoholism, pellagra, beriberi and other serious conditions

The chief *symptoms* of neuritis are **tingling** or "pins and needles," and also **burning**, boring, or stabbing pains in the affected nerves. In the more severe cases, there may be numbness and loss of sense of

sensation, and the near by muscles may be paralysed **Bell's palsy**, temporary paralysis of the face, arises from inflammation of the facial nerve on the affected side. During the acute stage of Bell's palsy, the patient is not able to close the eye, because the muscles on that side of the face have lost their normal tone and strength The patient then finds he can only grin on the other side of the face, and his mouth is pulled out of shape

Patients with **pernicious anæmia** may also suffer from neuritis involving the nerves of the spine. There may not be any pain, but such people may have difficulty walking in the dark This can now be readily corrected by the use of vitamin $B_{12}$ injections. All cases of neuritis should be thoroughly investigated to be sure the patient does not have diabetes or some other underlying disease. Arthritis and fibrositis may sometimes be mistaken for neuritis.

Wherever possible, *one should treat the underlying condition* If the trouble is due to some injury, or a ruptured disc in the spine, bed rest with traction may be all that is needed. Apply hot moist packs, *as suggested on page 96* Some *mild pain relieving medicine* such as aspirin may be needed to keep the patient comfortable and free from pain The diet should be high in proteins and vitamins, *especially in cases of infectious or toxic neuritis*. As *the pain subsides*, more active exercise should be encouraged If the pain is very persist ent, the affected nerves may have to be blocked by anæsthesia or *some suitable surgical procedure*

**Neuralgia.** This is an acute severe pain for which no basic cause can be found It is most often associated with neuritis as mentioned above. *Trigeminal neuralgia or tic douloureux is one form of neuralgia* which is marked by brief attacks of severe pain along the branches *of the trigeminal nerve This is the large sensory nerve of the face* and head There is *intense stabbing pain in the side of the face and* around the eyes. At first these pains may last for one to two minutes, and then the patient may have no more pain for several weeks or months As the disease advances, the patient notes that parts of his face are more sensitive, and the pains come more frequently when these areas are touched

In treating neuralgia, follow the plan outlined for neuritis. (See above ) In very severe cases of tic douloureux, it may be wise to have a neurosurgeon inject some suitable medication into the nerve. If this does not relieve the pain, then the nerve may have to be com

pletely severed by surgery But wherever possible, the milder methods of treatment are preferred

**Sciatica** is a severe type of pain felt along the back of the thigh and leg, along the course of the sciatic nerve. This is the longest nerve in the body It sends branches into the thigh muscles, the knee joints, and down into the muscles of the legs and feet The sciatic nerves begin in the lower part of the back and pass down behind the thigh This means they are more exposed to injury and inflammation than most other nerves

Any type of injury to the spine may cause sciatic neuritis, because of compression of the sciatic nerve at its roots Any infection or toxic material near the area of the nerve may result in sciatica. But in ninety per cent of cases the trouble is due either to a ruptured disc or else **osteoarthritis** of the lower spine Other causes include pregnancy, tumours of the pelvis, and deformities of the lower spine The sciatic nerve may even be injured by walking, running, or riding a bicycle Prolonged standing or sitting on one side of the edge of a chair may lead to sciatica In the case of a ruptured disc, the pain is often aggravated by coughing, sneezing, bending forward, or straining at the stool Often the pain disappears with bed rest, only to return days or weeks later after some slight injury or extra exertion

All patients with sciatica should be given a thorough physical examination, especially if there is any question of injury or infection The pelvic organs should also be thoroughly examined for tumours or other abnormalities X rays should be taken of the spine, pelvis, and lower extremities to rule out any defects or tumours

In treating sciatica first apply **hot moist packs** and gentle **massage,** as suggested in chapter 11 **Bed rest,** plus the use of simple pain relieving medicines, such as aspirin, Empirin or Darvon Compound, will often work wonders In some cases it may be wise to wear a support. It should be well fitted and properly padded to protect the skin Local heat should be applied over the irritated nerves in the thigh and leg, using a heating lamp, hot water bottle, or electric pad Many cases will respond well to such simple treatments But a herniated disc may have to be removed by surgery

## *Shingles or Herpes Zoster*

Shingles or herpes zoster is a severe infection of one or two large nerves It usually occurs on one side of the chest or abdomen Shingles always begins with severe pain along the course of the involved nerve. After a few days there is a painful itching rash, lasting several days or weeks Shingles results from a filtrable virus, the same or similar to the one that causes chicken pox in children It is strange that such a simple children s disease should be so much more painful in adult life

Shingles occurs most frequently in early summer and late autumn *It is not a skin disease, but a severe form of neuritis involving* one or more of the nerves The course of the nerve is clearly outlined by the skin rash that appears later Most cases of shingles occur on the chest or abdomen, but there are times when it may involve one of the eyes causing severe swelling and itching Unless properly treated, it may also cause ulceration of the cornea

**Treatment** Large doses of vitamin $B_{12}$, 1000 micrograms per day for several days, may reduce the inflammation in the nerve. Protamide 1 3 cc per day for several days may also help The irritated skin should be covered with collodion or tincture of benzoin to keep out the air Cortisone or prednisolone tablets are also valuable and may be taken once or twice a day Most cases of shingles clear up in two or three weeks, often sooner But there is usually some sensitivity over the affected area, and even pain at times, which may continue for months or even years As far as possible, the patient should carry on his normal activities and try to ignore the discomfort and irritation in the skin and nerves.

## *Convulsions and Epilepsy*

Epilepsy is a serious disorder of the brain characterized by periods of *unconsciousness* lasting from two or three seconds up to several minutes These attacks are often accompanied by convulsions in which the patient falls to the ground There are four main types of seizures grand mal, petit mal psychomotor attacks, and epileptic equivalents Each follows its own specific pattern No one knows the true cause of epilepsy, but no doubt some abnormal electrical discharges occur within the brain tissue and these cause the seizures.

In cases of epilepsy a doctor s services are advisable

**Grand mal** seizures are violent contractions of the arms, legs, and body, accompanied by a sudden loss of consciousness. Some patients have a warning or *aura* just before the convulsion begins. In a typical attack the patient cries out, loses consciousness, falls to the ground, and goes into a severe tonic spasm followed by jerky movements of the extremities, trunk and the head. The patient may lose control of his urine and fæces. The attack may last several minutes, and is usually followed by a deep sleep. On waking he complains of a severe headache and soreness in the muscles. Blood may ooze from his mouth because he may have chewed his tongue during the severe muscular spasm.

During the convulsion, loosen all tight clothing, including the collar. Place a pillow or coat under the patient's head, and hold a handkerchief or other padded cloth between the upper and lower jaws to prevent biting of the tongue. When the attack is over, let the patient rest and sleep as long as he wishes. As far as possible, encourage him to live a **normal life,** avoiding all nervous stress. He should not drive a car, or work at any occupation requiring the use of an open fire or moving machinery. Epileptic children should attend school and participate in sports or other activities. This will help them to gain confidence in themselves and make them feel happier at home. Dilantin sodium 100 mg once or twice a day is usually sufficient to keep the patient free from attacks. Phenobarbital, one quarter to one half grain two or three times a day, may also help, especially in more severe cases.

**Petit mal** is a less serious form of epilepsy. The patient has a momentary loss of consciousness lasting for a few seconds. He may suddenly stop what he is doing and then resume it when the attack is over, not even being aware of what has happened. Perhaps he might find that he has dropped a cup or some other object he is carrying. Petit mal attacks may occur at any time in life but are most frequently seen in children. **Tridione** several times a day is the recommended medicine.

**Psychomotor attacks** are minor seizures in which the patient loses contact with his environment for perhaps one to two minutes. He does not fall but may stagger around performing automatic, purposeless movements and making unintelligible sounds. During the attack he does not understand what is said and may resist any aid. He may be confused and mentally clouded for a minute or two after

the attack is over Tridione several times a day is the recommended medicine

**Epileptic equivalent** is a rare form of epilepsy in which patients may have attacks of abdominal pain and also periods of mental cloudiness lasting up to several hours The treatment is the same as for petit mal

*Poisoning* Convulsions may sometimes follow poisoning from certain drugs such as strychnine, atropine, lead, and caffeine. The appropriate antidote should be administered immediately, as outlined on page 140 Convulsions sometimes occur in young children at the beginning of a fever or some more serious disease such as *meningitis* *Emotional upsets and hysteria will sometimes cause* convulsions in certain people However, this is *different from epilepsy* in that the patient is able to control the urine The most violent convulsions of all are due to tetanus (see page 112 )

**Tics and habit spasms.** These are sudden habitual purposeless *movements of certain muscles of the face or body* *They may occur* at any age, but are more common in nervous children between five and twelve years Occasionally these habit tics follow encephalitis. The child may have involuntary blinking of the eyelids, shaking or nodding of the head, pouting, grinning, clearing the throat, shrugging the shoulders or perhaps a combination of several of these When he is upset or tired, the movements become more intense, but usually disappear during rest and sleep As he grows older the peculiar habit may disappear, but in a few cases it may become worse All such children should be under the care of a psychiatrist Meanwhile, keep the child quiet and avoid all nervous strain Some mild sedative such as Reserpine 25 mg or Butisol sodium 0 5 gr once or twice daily, may help the child to overcome this problem

### *Nailbiting*

Nailbiting is a common sign of nervous strain Once developed, it is a difficult habit to break, particularly during adolescence. In solving this problem try to remove every known cause of worry and anxiety *Be sure to take sufficient rest and avoid over-excitement.* Some people apply various bitter tasting substances to the nails but these do little good, for they do not remove the *cause* of the trouble. Remember, nagging and unkind criticism only lead to further tension and unhappiness Be sure to provide plenty of wholesome outdoor

exercise, including frequent deep breathing This increases the blood circulation and helps to get rid of the nervous tension Meanwhile keep the nails short and smooth, so there will be less temptation to bite them

*Stammering and Stuttering*

Stammering and stuttering usually begin in early childhood, and unless properly handled, this serious handicap may continue for the rest of a person s life Because of nervous tension, the child may find himself unable to say the right word He becomes flustered and wrong sounds come out. Laughing at him will only deepen his embarrassment Try not to be too concerned Speak slowly and correctly and keep him calm and quiet Remember, this is ***not a speech defect*** It arises from nervous tension and anxiety But there is a brighter side to this, for some of the world s greatest orators have also suffered from this problem In their determination to master this annoying habit, they have been able to discipline themselves and thus overcome a most serious handicap

*Hiccups*

Hiccups are short contractions of the diaphragm or large muscle dividing the chest from the abdomen resulting in crowing or gasping sounds The cause is not always clear, but certain nerve pathways seem to be irritated, perhaps by swallowing hot foods or some disorder of the stomach, œsophagus, or pancreas In a few cases peritonitis may be responsible Hiccups are sometimes seen in typhoid and also in amœbic infections Liver conditions may also cause hiccups and attacks may even occur during pregnancy, probably because of bladder irritation Hiccups are sometimes associated with pleurisy, pneumonia, uremia and drunkenness

**Treatment** Try simple measures, such as deep breathing or drinking a glassful of water rapidly Holding the breath or breathing into a paper bag will help to build up the carbon dioxide in the body and this may relieve the hiccups Tickling the nose or throat is also beneficial Pulling on the tongue, swallowing dry bread or crushed ice, or pressing on the eyeballs—any of these may be tried Sometimes a mild sedative, such as phenobarbital will relieve the condition In more severe attacks, chlorpromazine (Largactil) 25

to 50 mg two or three times a day may be tried For uncontrollable hiccups, it may be necessary to consider surgery on one of the phrenic nerves, but this is the last resort when all else has failed

### *Parkinson s Disease*

Parkinson s disease or *shaking palsy* is a chronic condition of the central nervous system that may follow an attack of encephalitis, or some type of poisoning, such as carbon monoxide In older patients this type of palsy may be due to hardening of the arteries in certain vessels leading to the brain Often there is no known cause

In the more advanced stage of Parkinson s disease, the patient *may have a staring expression and unblinking eyes. The face muscles* are flattened or smoothed out losing the normal expression Saliva drools from the slightly open mouth, the skin appears greasy, and the patient walks with a short, shuffling gait with his head bent slightly forward and his hands held stiffly at the side His muscles are somewhat rigid and stiff so that when he moves his extremities there may be a series of little jerks a so-called cogwheel rigidity '

*Usually there is a tremor of the hands head and other parts of* the body depending on how far the disease has progressed These tremors are more noticeable when the patient is at rest, and tend to disappear when he attempts to move or when he is asleep When he is excited or fatigued the tremor is more pronounced Later there may be impairment of speech and the patient may *complain of* cramping pains in the back because of muscle spasm His mind usually remains clear and his other sensations are normal In many cases the patient may have only a mild form of Parkinson s and continue this way for many years before any serious symptoms develop

**Treatment** Everything possible should be done to help the patient to maintain a cheerful mental outlook Keep him as active as possible. Apply hot moist packs and gently massage the stiffened muscles following the methods outlined on pages 96 to 104 Use some simple pain relieving medicines such as aspirin to relieve the cramplike pains. If the patient seems unusually tired and weary, he may benefit by taking a five mg tablet of **amphetamine** in the *morning and another at noon* Medicines containing belladonna are also useful They help to decrease the tremor and excessive production of saliva The usual dose is one capsule or tablet three times a day after meals

Newer surgical operations for the control of Parkinson's disease are now being carried out at some of the larger medical centres, but it is best to try a simple medical programme first

*Tremors*

A tremor is an involuntary movement of one or more parts of the body Among the most frequent types of tremor are those arising from Parkinson's disease, multiple sclerosis and hardening of the arteries leading to the brain Drug addicts, especially those who are habituated to morphine, cocaine, and opium, may show a coarse, slow tremor, involving the face and extremities Another very frequent type of tremor is seen in alcoholics, especially in the early morning This tremor is most severe during an attack of delirium tremens

Patients with thyroid disease may also show a fine tremor, particularly when the hands and fingers are stretched out Another fairly common cause of tremor arises from anxiety and nervous



Children affected by cerebral palsy develop slowly physically but many of them are mentally bright.

tension This may also be seen in hysteria. Suggestions for treating these various diseases are found elsewhere in this book

### *Cerebral Palsy*

Cerebral palsy is a very serious disability that probably begins at birth or perhaps is due to some defect before birth In most cases the true cause is unknown As the baby grows he may be small and underdeveloped, but in some cases he may seem quite normal at first. Later he may fail to sit up at six months, or to talk and walk at one year During his second and third years he may have *convulsions* and peculiar *meaningless movements* of the extremities. The muscles of the extremities are likely to be spastic, both sides usually being involved Swallowing may be difficult and the child may appear somewhat retarded, usually because of the difficulty in expressing himself However, his mind may be quite clear

**Treatment** Milder cases should be encouraged to live as normal a life as possible Weakened muscles may need to be re educated, and special splints used to support the extremities Many of these patients *are mentally bright, their slowness being due only to their physical* handicap Most of them make good progress under special courses of study, speech training, and vocational guidance

### *Dizziness*

Vertigo or dizziness is an unpleasant feeling or sensation of spinning or lack of normal balance There are many different causes *of dizziness Infections* of the ear may result in **labyrinthitis**, or inflammation of the normal balancing organ located in the inner ear **Otosclerosis** or hardening of the bone through which the eighth nerve passes, is another cause. **Meniere's disease** discussed on page 613 is another common cause Various **drugs** of the aspirin variety as well as narcotics nicotine, caffeine, streptomycin and alcohol all may cause toxic disturbances leading to dizziness. Motion sickness, sunstroke, eyestrain, glaucoma high blood pressure, hardening of the arteries leading to the brain, are also fairly common causes of dizziness Heart failure anæmia, and leukæmia may sometimes be responsible Infectious diseases such as influenza typhoid encephalitis measles, mumps, shingles, syphilis, epilepsy, and multiple sclerosis may also cause vertigo or dizziness. The treatment depends on finding

the cause of the trouble and relieving the condition as far as possible. Temporary relief is usually obtained by using such medicines as **Dramamine** (50 mg every three to four hours), or **Antivert,** a medicine containing large amounts of niacin, taken three times a day

*Strokes*

The brain is a delicate organ requiring a constant supply of blood A stroke occurs when one of the vessels leading to a portion of the brain becomes blocked by a **blood clot.** This may be due to inflammation, arteriosclerosis, or perhaps the presence of a clot or embolus from the heart Occasionally one of the vessels leading to the brain may rupture because of a small aneurysm or balloon like enlargement in the wall of the vessel This will cause a serious **hæmorrhage** Any sudden elevation of blood pressure due perhaps to some emotion such as anger may rupture the aneurysm

A stroke of **apoplexy,** also known as cerebral vascular accident, is the most common form of brain disease particularly in the older years of life Most strokes are due to thrombosis or clotting of blood within the vessel When this happens, that portion of the brain becomes necrotic and dies

Often the first sign of trouble may be a sense of **dizziness,** followed by nausea and vomiting, and later by weakness or **paralysis** on one side of the body The patient may complain of a severe head ache, and may even have a **convulsion,** or pass into a **coma** from which he cannot be aroused for some time He may be completely paralysed on one side and may not be able to speak His mind may remain clear, but for some time he may not be able to recall the actual words he wants to use

Many strokes occur suddenly and tend to clear after a few hours. In more serious cases the patient may remain in a deep coma for several days He may have a *fever* a *rapid pulse* with *laboured breathing* However, if the coma lasts more than six hours and the patient passes through periods of convulsions with stiffness in the neck, and with the eyes turned sharply toward the paralysed side, the condition is probably due to a hæmorrhage of the brain A severe hæmorrhage is usually fatal in two or three days, especially if the patient runs a high fever and a rapid pulse Patients are more likely to recover if the stroke is due to thrombosis

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Most stroke patients manage to recover, especially if only a small vessel is involved. Many of them do not even lose consciousness, but the weakness or paralysis may drag on for a long time. Some permanent disability is to be expected, even with the best of care.

**Treatment** Good nursing is most important in all stroke cases. Keep the patient in bed and follow the suggestions on page 506. If the patient is in a coma, it may be necessary to use a retention catheter to keep the bed dry. Patients not in a coma should be treated as normally as possible. If the stroke is due to a brain hæmorrhage, the clot may be removed by surgery.

Every effort should be made to encourage the patient to use the paralysed limbs. Gently **massage** the paralysed muscles and move all the joints several times each day. As soon as possible, get the patient out of bed and let him walk around the room. If his speech is affected, he may benefit from the services of a speech teacher. More serious cases are best treated in hospital, but most elderly patients can be well cared for at home.

### *Head Injuries With Hæmorrhage*

Any injury to the head may cause a subarachnoid hæmorrhage or bleeding into space between the covering tissues of the brain itself. The hæmorrhage may also arise from some congenital aneurysm or ballooning of the vessel as mentioned above. Usually there is a severe pain in the head, followed by nausea, vomiting, loss of consciousness, and perhaps convulsions. To establish the diagnosis, the doctor may pass a long flexible needle into the patient's back and draw off some of the spinal fluid for a cell count and other laboratory tests. He will also test the pressure in the cerebrospinal fluid, and if it is very much elevated, he may decide to repeat the spinal tap several times during the course of the illness. Special tests, including a cerebral angiogram, may be needed to establish the diagnosis and also as a guide to possible surgery. All patients with brain injuries should be treated in hospital.

### *Concu*

C ... serious ... the brain and central ... It is usua ... a violent shock or

jarring of the head and is followed by nausea, dizziness, a weak pulse, slow respirations, and temporary loss of consciousness. Concussion is almost always associated with some type of head injury, either due to a fall, a traffic accident, or perhaps a blow on the head. The brain is a very delicate organ, and is encased in a hard bony cavity, the cranium or skull. Within this cavity the brain itself is surrounded by a watery liquid, the cerebrospinal fluid. Tiny tendrils of tissue, including many small blood vessels, help to hold the brain in place. These are easily snapped or torn by a heavy blow. Any injury to the head is likely to result in a great deal of commotion within the brain, and this is reflected in the sudden *loss of consciousness, shock, nausea* and other signs of serious injury. Recovery is often slow, and there may be periods of *dizziness* for weeks or months, particularly after a highway accident or a bad fall.

**Treatment.** Keep the patient quietly resting in bed and apply an **ice bag** to the head. **Check the pulse** frequently to determine its regularity and volume, and take the patient's **blood pressure** every hour until it is stabilized. If the patient is in shock, treat as suggested on page 109, raising the foot of the bed six inches higher than the head. If the patient's head has been injured by a blow or fall, be sure to have **X rays** taken of the skull, but not before the patient is in a condition to do so.

Watch carefully for any difference in size between the pupils of his eyes. If one pupil appears larger than the other, or if the patient has a gradually increasing **headache,** call your doctor at once. Any evidence of **paralysis** in the face or any part of the body should also be reported. Vomiting is to be expected after most injuries involving the head. Suppositories containing Dramamine, Vistaril, Campazine or other such medicines are often useful in controlling the nausea and vomiting.

If the X ray shows a **fracture** or crack in the skull, and there is no displacement, the fracture will usually heal without any special treatment, provided the patient's condition is not getting worse. If the bones of the skull are depressed, call an ambulance and transfer the patient to hospital at once. He should be kept under observation for at least forty-eight hours. Bleeding scalp wounds should be cleansed and drawn together with sterile sutures to prevent further loss of blood. If this cannot be done, cover the injured area with a sterile dressing to prevent further contamination.

### *Brain Tumours*

Tumours of the brain are not common They may cause various symptoms such as headache, nausea, vomiting, and even convulsions in a few cases Any patient showing marked *drowsiness* or a change in personality, such as *disorderly conduct*, or an impairment of normal *mental faculties, or even a frank psychosis, should* be seen by a qualified neurologist or neuropsychiatrist The trouble could be due to brain tumour that might be either benign or malignant.

**Treatment** Some tumours, such as pituitary adenomas, can be treated by X ray, but wherever possible, it is best to have the tumour removed by surgery

### *Encephalitis*

Encephalitis, or inflammation of the brain, is fortunately rather rare. This very serious disease is usually associated with certain viruses, some of which are carried by mosquitoes, ticks, and other vermin Encephalitis may also follow such infections as measles, chicken pox, smallpox, influenza, mumps, and even the common cold The disease usually begins suddenly with a fever and perhaps convulsions, headache, drowsiness, delirium, and paralysis of the bladder and extremities.

**Treatment** Good nursing care is most important particularly during the acute stage. Keep the patient quietly resting in bed and *turn him frequently from side to side to prevent pressure sores from* developing Give careful attention to the bowel and bladder Fluids may be given by vein, particularly to stuporous patients. A tepid sponge bath, followed by an alcohol sponge will help to bring down the fever Apply an ice bag to the head Delirious patients may be given paraldehyde, as directed by a physician *The diet should be light and easily* digested The patient should be protected from visitors telephone calls and any form of excitement He should not return to work for several months. With proper care the outlook is fairly bright provided the patient rests long enough to make a full recovery

### *Meningitis*

Meningitis is a severe inflammation of the meninges or coverings of the brain and spinal cord It may follow an attack of otitis media

(middle ear disease), mastoiditis, brain abscess, or even tonsillitis. Any skull fracture or penetrating head wound may result in meningitis. There are times when tuberculosis may extend to the brain and cause meningitis Patients with this disease usually have a high fever, severe headache, and pain and stiffness in the neck and back.

Epidemic meningitis or **spotted fever** sometimes occurs in densely populated areas during the cold season The germs are apparently spread by persons who have a mild sore throat or cold The patient usually has a severe headache, a high fever, and soon becomes confused He may have an attack of convulsions Vomiting is common in epidemic meningitis. Antibiotics, such as **penicillin** and **Terramycin,** are of value So is **sulphadiazine,** the average dose for adults being 6 to 10 tablets a day If the patient is vomiting, give the medicines by injection For meningitis a doctor's services are important

### *Multiple Sclerosis*

Multiple or disseminated sclerosis is a chronic disorder of the central nervous system in which the nerves become demyelinated or lose their normal covering The true cause is not known. The patient may complain of **weakness** on one side of the face with heaviness of the limbs and partial blindness in one eye, or perhaps double vision If the brain is involved, he may have convulsive seizures, or one-sided **paralysis,** and be subject to **crying spells, forced laughter,** or other signs of involvement of the nerve pathways controlling the emotions. He may also have **tremors** and **slow speech**

In the milder form the patient may show nothing more than a lack of normal judgment Speech may be hesitant, the patient knowing what he wants to say but unable to speak the words normally Tremors are common, and the movements of the extremities are irregular and weak. He may walk with a **stumbling,** weaving type of gait This is a disappointing type of disease. Sometimes it tends to clear up, only to return several months later

**Treatment** Unfortunately there is no known cure for multiple sclerosis Many patients have benefited by various medicines for a time, only to find that sooner or later the old problem returns The patient should **avoid overwork** and fatigue Weakened muscles should be given **massage,** and all the joints should be put through their normal range of motion every day This will also help spastic muscles Keep

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**Treatment**. Unfortunately, there is no known cure for multiple sclerosis. Many patients have benefited by various medicines for a time, only to find that sooner or later the old problem returns. The patient should **avoid overwork** and fatigue. Weakened muscles should be given **massage,** and all the joints should be put through their normal range of motion every day. This will also help spastic muscles. Keep

the patient at his normal occupation as long as possible Give him extra vitamins particularly nicotinic acid or niacin (100 mg three times a day) and **thiamine,** in addition to vitamin $B_{12}$ Cortisone products may give temporary relief, but may not affect the general course of the disease Most patients with multiple sclerosis will have less trouble in a warmer climate.

### *Muscular Dystrophy*

Muscular dystrophy is a hereditary disorder of unknown cause, involving both nerves and muscles It usually begins early in childhood The child walks with a clumsy gait, tends to fall, and then has difficulty in getting up without help As he grows older he will learn to rise on his hands and knees, and then help himself by 'climbing up' on his own legs There are several different forms of this disease, but unfortunately, there is no recommended treatment other than massaging the muscles and keeping the patient as comfortable as possible

### *Myasthenia Gravis*

In this disease the muscles are weak, and there appears to be some delay in nerve conduction at the point where the nerves join the muscles The true cause is not known Usually the patient feels stronger in the morning and becomes tired and weak toward evening Muscles most frequently involved are those of the neck throat lips tongue, face, and eyelids The disease comes on gradually, the patient first noting double vision, difficulty in swallowing chewing, and talking—all these symptoms being worse in the evening Eventually the face loses its normal expression, and there is drooping of the eye lid on the affected side of the face This disease may apparently clear up only to return several times during the lifetime of the patient

**Treatment** Complete bed rest is necessary during the acute stage of the disease The patient should be given a general diet and a normal amount of liquid **Neostigmine** is the best medicine In milder cases a 15 mg tablet may be given three or four times a day Medicines containing belladonna should also be given three times a day along with neostigmine Some patients will benefit by taking a tablet of **ephedrine,** 25 mg, three or four times a day Others have benefited by the surgical removal of an enlarged **thymus gland** from the chest

# HELP FOR TROUBLED MINDS

Nervous problems are more common than all other illnesses combined They affect people of every age and race, and there seems to be no end to the number of those who are sick because of anxiety nervous tension, or emotional stress Nor are the so called nervous people the only ones affected Many others with heart disease, high blood pressure arthritis and other types of illness are also under great stress and strain because of their physical condition Need we wonder why tranquillizers are so widely used today?

*Common Illnesses of the Mind*

Nervous disorders can be roughly divided into two main classes or groups—those arising from *neurotic* problems, and those related to *psychotic* or disturbed personalities People with **neurotic** problems are more or less normal in their reactions They may be over anxious, or perhaps saddened or depressed, but even in their darkest moments they are always in touch with reality In other words, they are not so different from the rest of us except that under the pressures of living they tend to go to extremes As we think of them we might even begin to recognize some of our own peculiarities and those of our friends!

*Neurotic Personalities*

Among these neurotic personalities are **chain smokers, alcoholics drug addicts** people contemplating **suicide,** and all those anxious fussy people who are never quite satisfied with life They also include almost all **ulcer** patients, as well as the majority of those suffering from **high blood pressure** People who are abnormally **fat** or **thin** may also belong to the neurotic group Because of their nervous tensions they either eat too much or too little. **Sleep walkers,** insomniacs obsessive compulsive people, cynics chronic scoffers,

nagging wives, and most of those unfortunate people who are "always sick"—all of these are emotionally unhealthy in one way or another Their frustrations and complaints are almost endless

Cicero, the great Roman philosopher, said, "The diseases of the mind are more numerous and more destructive than those of the body' He was right, but often the true situation is not recognized As a result, many of these unhappy people find themselves wandering from one doctor's office to another, always searching for a solution, or having their appendix, gall bladder, or pelvic organs removed, but never finding that inner peace they so much desire Sometimes these unfortunate sufferers may actually dream up a few extra symptoms to help them gain sympathy! They worry their friends, their families, their employers, their pastors, their attorneys and physicians.

Every doctor's reception room has its share of these unhappy people. Many of them feel guilty over real or imaginary situations. Others are afraid of heart trouble, high blood pressure, and cancer They act as if they are being punished for what they did or did not do These peculiar guilt feelings always seem to stem from early childhood As these neurotic people grow older, they often tend to exchange one set of symptoms for another, until finally they reach old age. Yet none of this is really necessary With proper treatment, most of these neurotic problems can be solved

### *Queer People*

That other great group of mental patients, the psychotic personalities are very different, for these are decidedly *abnormal* They are completely out of touch with the world around them Some of them claim to hear "voices," while others hold conversations with people who may be non existent or long since dead Their peculiar behaviour arises either from a distorted view of life, or perhaps from some derangement of the brain Some of these queer people believe they are a reincarnation of famous personalities of the past, such as Buddha Confucius, Cleopatra, or Napoleon They may even try to assume the mannerisms and dress of the individual they are impersonating

Unlike the neurotic group mentioned above, many of these psychotic people are perfectly happy in their peculiar little world, and most of them are more or less harmless But a few are decidedly

dangerous Some of the most dreadful crimes are committed by **paranoid** people who may outwardly appear quite sane and sensible. Their thinking is so disordered that they actually believe the whole world is against them They carry deep grudges and will stop at nothing in their determination to "get even" with their "enemies.'

Many of them honestly believe their neighbours are planning to harm them, perhaps by 'shooting' so called death rays through their windows, or poisoning their food or water In their disordered state of mind they secretly plot to destroy these imaginary enemies by every means at their disposal They may not always resort to crime, but they will carry on a programme of malice and hate which amounts to the same thing

Paranoid people turn up in the most surprising places, even in high government positions at times They are often very clever people Some of the most frightful wars have been started by these deluded people, most of whom appear to have a **"persecution complex"** from early childhood. Adolph Hilter is an outstanding example of paranoid behaviour He and the other queer people around him not only managed to enslave most of Europe, but also to slaughter at least six million Jews, not to mention all of those other untold millions who died as a result of World War II

People with disturbed minds fill the mental wards of every large city hospital today Some are sick with inherited weaknesses Others are sick because of the evils brought on by their own folly Many of these unfortunate people are suffering from syphilis of the brain, a chronic disease that unless properly treated will completely destroy both mind and body These are the more extreme cases of brain damage. A less severe situation may develop if one of the arteries leading to the brain becomes blocked or narrowed owing to arteriosclerosis or hardening of the arteries. For further details of this, see page 263

### *There is a Brighter Side*

But the picture is not all bad, there is a brighter side Many of our most brilliant men and women have passed through great disappointments in life. But instead of becoming depressed they have turned defeat into victory, and have succeeded in creating some of the most remarkable things known to man. For instance, Beethoven

wrote some of his finest music after he was completely deaf Milton produced his most beautiful poems after he was blind Many of us would feel hopelessly depressed if we suddenly became deaf or blind, but these men were able to enrich the whole human race in spite of their disabilities We might even go further and say that without these handicaps they might never have done so well It all depends on one's attitude of mind

Why are some people able to meet the problems of life successfully while others fall far short of their ideals? To answer this we must first of all understand something about ourselves and why we react the way we do There are three major factors in the growth of the human mind—heredity, environment, and our own personal response **Heredity** is that great mass of inherited tendencies, good or bad, with which we are born These are more or less fixed and permanent We can do nothing to change them But we can always modify these hereditary tendencies if we so desire

Our **environment** is the world in which we grew up This too is largely beyond our control, particularly during our earlier years All our peculiar family customs our likes and dislikes our prejudices, all our pleasant and unpleasant memories, and all the deceptions and falsehoods that filled our early years plus all the good and bad behaviour we observed among our relatives teachers and friends while we were growing up—in most of this we had no choice. They are all part of our background

But greater than either heredity or environment is our own **personal response,** or the way we have reacted toward the problems of life Years ago before the age of steam people travelled in sailing ships The winds were often blowing from the wrong direction Yet those old sea captains usually managed to keep their ships sailing toward the ports they were trying to reach They did it by "tacking" back and forth and by setting the sails so that the wind would still carry them forward

So it is with ourselves The storms and stresses of life will either drive us forward or back, depending on how we direct our course. It is so easy to blame others when the real problems usually lie within ourselves Our own personal response means far more than all the influences that surround us We are not being blindly driven toward a cruel inescapable fate The choice always lies within ourselves. Many of our failures are due to childish reactions that we have carried



**It is the parent's responsibility to help each child to grow up to full maturity that he may have good mental health.**

over into adult life This is a common cause of mental and physical illness

Often the man who is inwardly afraid will become bold and arrogant to cover his secret fears Or he may shrink into a helpless state, as if pleading for pity Both reactions are childish and immature Even though he is fully grown his behaviour under stress may show that he is regressing back to childhood Most of our mental illnesses arise because the individual cannot cope with the stress and strain of living It is the parent's responsibility to help each child to grow up into full maturity and peace of mind

### *Most Babies Are Healthy*

During any twenty four hour period several thousand perfectly healthy babies are born Many will no doubt grow up to be good citizens, but some will become desperately unhappy people, largely because of circumstances beyond their control Among these there will be juvenile delinquents, alcoholics, drug addicts, sex perverts, and many other types of abnormal personalities These people were not born with any serious physical defects They became problems in society because of unfortunate situations in their childhood and youth

No one single factor is solely responsible for the development of an abnormal personality Hereditary tendencies are strong Environ mental effects may be even stronger How has he reacted to all those unfair things that were said about him in his younger days? Is he morose and full of revenge? If so, he could even be dangerous to others What is his own personal response?

We cannot always blame parents, brothers, sisters, or teachers for a child's failure, even though all of these may play a part. The final choice is always our own—except in frankly psychotic individuals who are discussed at the end of this chapter The great majority of nervous patients fall within the neurotic or psychoneurotic group All of them are insecure in one way or another Some are over-anxious, while others are depressed A few are both anxious and depressed We will discuss the anxious group first.

### *Anxious Patients*

Man has been given a most remarkable memory He can easily recall events that have happened many years ago and thus foresee to some extent what is ahead This often helps him to avoid serious trouble. But this ability to anticipate the future seems to get some people *into serious trouble, particularly when* they become over anxious and deeply concerned about the future. Many of these individ uals enjoy excellent physical health Often they are well built speci mens of humanity, perfect in every way Yet inwardly they may be desperately afraid of their own future. Their troubles are not due to any lack of vitamins, minerals, or proteins, important as these are, but to the fact that they have failed to make the normal adjust-ments of life

A certain amount of fear is perfectly natural, particularly if one

is in danger of being run down by a speeding train or car! Such concern is a normal, healthy reaction, for without it we might be killed But anxiety is quite different from this type of fear, for it stems from deep mental conflicts Usually the one experiencing the conflicts can give no valid reason for his strong feelings, so he worries about some physical weakness and wonders if he might have a failing heart or some other serious condition The same is true of patients with asthma They seem to do fairly well until they have to face some distressing situations, then almost immediately they will begin wheezing This is a *psychosomatic* response to an over-anxious mind

Anxiety is a most unpleasant emotion The patient usually has deep feelings of apprehension, uneasiness, and even panic Suddenly *he may feel his heart beating rapidly Next he develops short*ness of breath, sweating, or some other peculiar reaction. His blood pressure may begin to rise and his heart to palpitate, and soon he is troubled with real mental anguish and physical distress It is easy for him to think his symptoms are due to some organic cause within the body, but anxiety or hidden fear is the true cause of his trouble.

There is no question that such people are sick, but their illness is usually due to some underlying emotional conflict which may have been completely overlooked If such a patient does have a genuine heart attack, this will increase his anxiety Naturally he will ask how long it will last and whether it is likely to be permanent. Will it shorten his life? Can he expect to recover with proper treatment? Such questions are quite natural and deserve a favourable answer With good medical care he will probably recover from his heart attack, but his anxiety will always be somewhat of a problem to him.

### *True Cause of Anxiety*

The true cause of anxiety is often obscure, for it stems from the patient's early childhood when he may have been facing some very unhappy situation This may have left him with a feeling of helplessness because of rejection by one or both of his parents Naturally he tries to forget all such unpleasant memories but they still lie deeply buried in some unconscious area of his mind Then, to escape further unpleasant experiences, he begins to avoid any situation that reminds him of that first painful experience Such a reaction may also occur in later life, as in cases of 'shellshock" or complete forgetfulness after a battle. Amnesia is the medical term for this condition The



**The true cause of anxiety is often obscure and may have its roots in the patient's childhood**

individual may not only repress all memories of the unpleasant event, but he may even temporarily 'forget' his own identity, including his name, age, family background, and any recollection of the past.

If the patient feels that he himself is responsible for the unhappy event, he will also have strong feelings of guilt along with the anxiety He may then have an unconscious desire for some form of punishment to relieve these feelings of guilt Such peculiar reactions are often seen in young children who will go out of their way to be punished for some secret misbehaviour

These peculiar reactions are also seen in older people Some will unconsciously transfer these strong guilt feelings to some organ *or part of the body and develop a more acceptable symptom* such as a bad headache, a rapid heart, or pains in the abdomen Eventually such a patient may develop high blood pressure, or a peptic ulcer, an irritable colon, bronchial asthma, or some chronic skin condition All of these conditions have been known to stem from strongly repressed feelings of jealousy or rivalry in the family during the early years of life.

How does this come about? From the moment a child is born, he has instinctive needs that can be met only by his mother When he is hungry or disturbed he immediately begins to cry The mother then quickly comes to his aid and relieves his tension and feeling of helplessness As long as she is present he is happy and may soon drop off to sleep When he awakes he is again anxious and apprehensive, but with the mother's constant care he soon learns not to be afraid This develops a sense of security in him, so that he gradually loses his feelings of helplessness

During his early years the comforting presence of his mother means more to him than anything else in the world No one else can ever take her place He may tolerate the presence of strangers, but he feels more secure when his mother is near by Under her careful training he will eventually be able to go anywhere and do anything he wishes secure in the knowledge that he is an accepted part of the human family Those early years are the most important in his whole life, for it is then that the foundations of good mental health are laid

Now let us suppose that mother is tense and irritable and preoccupied with other things so that her new born baby does not receive the personal care he so much deserves He is under a serious handicap right from the start, unless he has a sister or aunt who can supply this maternal affection Even so he may still develop a deep feeling of insecurity But if he is not given the right kind of maternal care he may grow up filled with fear and anxiety and will no doubt feel that the whole world is against him So much depends on the atmosphere in the home during the early years of life

### *Don't Frighten Your Child*

Many parents and some older children make the tragic mistake of frightening a young child, thinking this will help him to grow up tough and able to face life. But he is not ready for such a hostile picture of life Inwardly he may feel lonely and afraid, and as he grows older he may become cold and hostile to the world As a young baby he may rebel against his fear ridden world by developing symptoms of colic, vomiting diarrhœa, or constipation

As a young child grows, he gradually comes to realize that certain parts of his body must be kept under control During his first year he is mainly concerned about what goes into his mouth In his second year he is increasingly aware of his bowels By the third year



**Every child must feel wanted and loved.**

he has already discovered certain satisfactions from stimulating his sex organs. By the fourth and fifth years he is already becoming aware of certain differences between his own and the other sex. All of this is perfectly normal If he lives in a friendly environment, he has a natural desire to please his parents and to be popular with the world around him But if the home atmosphere is filled with feelings of anger, hate, or jealousy, he will soon be aware that something is wrong and as a result, he may actually become ill because these strong emotions are interfering with his normal functions of life.

Without question, the greatest cause of anxiety in early life arises from sex These erotic feelings begin long before the child goes to school He probably discovers them more or less by accident. All young children derive a certain amount of satisfaction by secretly manipulating their sex organs The child who feels unwanted and neglected may do this more often How should a parent handle this problem? First, by giving the child a generous portion of his time and affection He should not frighten a child with foolish tales about losing his mind, for this is never true in a young child But the fear of such an event may haunt him for the rest of his days, and this is far worse

All children pass through these periods of psychosexual development. It is natural for any child to want to know where babies come from As parents, we must not be embarrassed when confronted with these simple questions Nor should we suddenly institute strict taboos or punish the child, for this will only leave him bewildered and inwardly hurt Such questions do not mean that the child is naughty, bad or dirty He is exhibiting a perfectly natural curiosity about the normal functions of life. Parents who react badly when questioned are only revealing their own sense of guilt! It is most important to hold the child's confidence, explaining in simple language the general principles, but reserving details until he is older and more able to understand

Most childhood fears tend to disappear in time But if parents are very strict and domineering, the child may develop a **neurosis** because of anxiety Fear of punishment may then carry over into adult life, and because of intense anxiety the individual may not be able to function normally in marriage. We all have a certain number of these unresolved conflicts or "complexes" that remain with us all our days Most of them are not very important, provided we have grown up in a kind and sensible atmosphere. But more serious problems may bring on strong feelings of anxiety that may plague a person for the rest of his life Many a home has been broken up because of old conflicts within the mind Later experiences all too often tend to revive these "forgotten" problems. Almost all nervous illnesses start with some type of anxiety, and each must be handled on an individual basis

**Treatment** Every nervous patient should be given the benefit of a thorough medical examination to rule out all physical causes

of disease Very few of these people are entirely free from bodily ailments These should be adequately treated, for in this way the patient may also be helped to overcome his nervous problems However, it is important to remember that his anxiety is an unconscious reaction *Nerve quieting medicines may bring temporary help, but* they are never the complete answer to the problem Some of the more severe cases may need the guidance of a specialist in psychiatry Most others will do well by counselling with their family physician provided he is the kind of doctor who will listen to the problem without passing judgment

Most patients seem to benefit from the opportunity to talk over their problems The physician has had experience in helping many other people with similar problems and thus he can guide the patient into a more complete understanding of himself Resolving the patient s conflicts will often bring peace of mind and lead to better ways of living in the future However, not all anxious patients really want help Some neurotic patients will cling desperately to their symptoms and resist any effort to make a change This in itself reveals the true nature of emotional conflicts

### *Nervous Breakdown*

When a person has a 'nervous breakdown it means that he can no longer face the world and solve his own problems Instead of making sensible decisions, he is likely to "go all to pieces" often for no apparent reason Unfortunately there is no simple solution to any nervous breakdown It always takes time, perhaps a year or more, before the individual regains his self control. Relatives and friends must understand this for no matter how much the patient may wish to "snap out of it, he simply cannot do so

Everyone has a breaking point beyond which he cannot safely go Many people suffer from nervous breakdowns because of undue fatigue Some are trying to get along without sufficient sleep eating the wrong type of food, and smoking or drinking alcohol to excess. Overwork may sometimes lead to a nervous breakdown The only cure for this is sufficient rest, but the patient must understand why he has this urge to attempt too much There may be some personality defect that should be corrected

Most nervous breakdowns arise from abnormal fear or anxiety as stated on page 515 Some patients are afraid of dirt, others of

crowds, animals, strangers, germs, closed doors, open spaces, high places, bright lights, or darkness Strange fears may haunt the patient's mind, producing weakness, a rapid heart, or feelings of smothering, or a cold sweat The more he tries to force himself the worse he feels Because of fear, he may lose his appetite and suffer from gastric disturbances and indigestion In all these cases there is definitely something wrong, though it is usually far different from what the patient suspects

A nervous patient may wake up in the morning with a sore throat He should stay home but he decides he must go to work He has a slight fever, feels dizzy, and his heart begins to pound, but he goes to work in spite of his feelings Someone may then remark that he looks pale Suddenly he is afraid Perhaps a friend of his recently died of a heart ailment. Could he be having a heart attack too? The more he thinks about it the worse he feels He is weak and tired and afraid His physical energy is at a low ebb because he has pushed himself beyond his limits It doesn t happen overnight. The patient was probably going downhill for some time, owing perhaps to bad habits of living

A nervous breakdown is no accident, there is always a period of excessive worry and emotional strain prior to the illness Nervous exhaustion often brings strange changes in personality, making one irritable, moody and depressed For a time he may be gay, carefree, and excitable before the depression He may even boast that he can do without sleep

Such behaviour should always make a person alert to the possibilities of a nervous breakdown They are indications that the patient is nearing the limits of his physical and mental reserve powers Soon he may reach the point of no return where he loses all sense of self-control

Loss of sleep often results in fatigue and quickly impairs a person s normal judgment. The higher centres of the brain are the first to show the effects of overwork and anxiety From being " the life of the party, such a person may become depressed losing all interest in life and burdened with a sense of impending death Unreasonable fears now arise to the surface of his mind, causing all kinds of anxiety and distress as well as sensations of acute pain In the end he loses confidence in himself and may feel he is about to lose his mind, or that he has committed some unpardonable sin



A period of rest enjoyed out in the countryside, away from the crushing worries of business life will serve as a tonic to many a nerve-frayed executive.

**Treatment** In treating a nervous breakdown every attempt must be made to uncover the cause. *Do not take any advice from amateurs* Some simple medicine, such as Librium (10 mg three or four times a day), may help to allay the patient's fears and quiet his anxiety But, unfortunately, there are no miracle drugs that will cure a nervous breakdown Modern tranquillizers are often helpful, but only a full understanding of why he is sick will ever bring a patient back to full health and vitality again This always takes time. Many of these patients will do better in a quiet hospital room where they may be able to discover the real reasons for the breakdown Once such a person has found the cause of his trouble, it will be easier for him to make the necessary changes and bring himself back into harmony with himself, his family, his friends, and with God

## *The Hypochondriac*

The hypochondriac is a person who is always preoccupied with some disease condition, either imaginary or real He prefers to make his own diagnosis and prescribe his own treatment. Some hypochondriacs just love taking pills and injections, and are always looking for tonics, sedatives, and laxatives of one kind or another Most of the time they complain of indigestion and lack of proper elimination. They carefully read all the literature on their particular subject, scientific or otherwise, and follow out every suggestion that is offered But in spite of all their efforts, they usually become weaker and less able to meet the problems of normal living Their trouble is mostly one of the mind, not of the body

Other hypochondriacs are always complaining of feeling tired and worn out They wander from one doctor's office to another and are very disappointed when no physical cause can be found for their strange feelings, which are really a form of neurosis Rarely is an organic cause found Such troubles are usually due to anxiety, frustration, and discouragement. Going on a "rest cure' will do no good. In a few cases there may be some problem with the thyroid gland or some other organ If, after a careful examination no cause can be found the trouble is most likely due to some hidden form of anxiety Such problems can be solved only by finding the cause of anxiety and clearing it up as suggested on page 515

### *Obsessive Compulsive Disorders*

Some neurotic patients demonstrate their anxieties in very strange ways They will sometimes develop peculiar habit patterns, which they seem to carry out as a form of ritual They may begin repeating certain meaningless words and thoughts, and this seems to bring a certain amount of relief But realizing how foolish this appears to others, the patient may try to resist the tendency This builds up a great deal more anxiety within, and he then finds some temporary relief by once more carrying out the ritual Such a person may be forever washing his hands, probably as a kind of penance because he wants to remove certain feelings of guilt But with all this hand washing the skin may become rough and irritated

A patient of this type is always very punctual He is likely to be an extreme perfectionist, cleanliness being almost a part of his religion

Obsessive-compulsive patients often do strange things Extreme cases include **kleptomania** or the compulsion to steal, and also **arson,** which is the compulsion to light destructive fires Such are the more extreme cases of obsessive-compulsive neuroses More simple forms of ritual may be observed in those who slavishly follow patriotic or religious ceremonies Investigation shows that such people have usually grown up under the influence of an over-conscientious parent whom the child has never been able to please **Treatment** is always difficult because of the lifelong tendencies, some of which may have been inherited It is advisable to seek expert counsel from a psychiatrist in more extreme cases

### *Hysteria*

Hysteria is another strange type of behaviour arising from intense anxiety It appears in both sexes but is far more common in young women most of whom are fussy, meticulous and overdressed Here the patient s symptoms would appear to arise from some real disease, but the resemblance is only superficial Any well trained doctor can always tell the difference, and so can most observant relatives But the patient herself is always convinced she has something definitely wrong inside She does, but it is different from what she suspects.

Under severe emotional strain or fright, or perhaps extreme disappointment, the patient may become **temporarily disabled** in some part of her body For instance, she may lose the use of her voice

and yet have nothing wrong with the larynx or the nerves of speech She may develop a temporary paralysis in one arm or leg, a condition often seen after some industrial or highway accident. The disability may then continue for a much longer period than would normally be expected from the time of injury only to clear up quickly after the patient has received proper compensation for the injury!

Some patients may suffer from hysterical **blindness** after some unhappy love affair or business transaction Yet they have nothing wrong with their nerves of sight Some young women who unconsciously resent becoming pregnant will develop attacks of **hysterical vomiting** **Amnesia,** or loss of memory, is another hysterical symptom, as outlined on page 515 **Sleep walking** is also related to hysteria **Fits and fainting** spells are common symptoms of hysteria Even megrim headaches may sometimes be hysterical in nature But in all this the patient is quite honest. He is not consciously trying to deceive His symptoms are quite real to him

**Treatment** Hysteria often appears so normal that treatment is difficult and disappointing The patient is not malingering or putting it on' She genuinely believes she is ill and it is often wiser not to enlighten her too rapidly, or she may develop other more alarming symptoms The family should just go about their business and generally ignore the patient until he or she gets over the problem More severe cases may need the advice of an experienced psychiatrist.

### *Problem Drinkers*

Alcoholism is one of the gravest social problems facing our world today, for it so often brings poverty crime, business failure and broken homes One out of every five patients admitted to mental hospitals is there because of chronic indulgence in alcohol. A very large number of traffic accidents are also due to alcohol This is a problem that concerns everyone those who drink and those who don t

Some alcoholics drink more or less steadily, others drink only when under stress or anxiety Some drink excessively and destroy themselves rapidly Others drink more moderately, but the process of self-destruction is still going on Alcohol acts like other nerve quieting drugs and because it is so readily available in most parts of the world it is all the more dangerous

**Effects on the Body** Alcohol often destroys the liver, causing **hepatic cirrhosis** It produces gastritis or inflammation of the stomach Its effect upon the brain is even more marked Large quantities of alcohol will produce the serious condition known as **wet brain**, in which there is marked swelling and congestion in the tissues covering the brain so that the normal powers of co-ordination can no longer operate Alcohol causes the heart to become weak and flabby, and then it no longer functions properly

In some people alcohol produces marked **paranoid reactions** The alcoholic may feel he is being persecuted He may then take revenge on others around him, or he may attempt suicide to escape the accusing "voices' that result from impaired functions of the brain. He may develop severe symptoms of peripheral neuritis in which the nerves become weakened and deteriorated His personality may so deteriorate that he becomes shiftless, lazy, and unreliable But even in such a low state he may still improve, provided he is willing to make the change and leave alcohol alone for the rest of his life

**Treatment** First of all, the alcoholic must have a strong desire to **stop drinking** He must also admit that in his own strength he can not do so He will probably benefit by joining a special group, such as Alcoholics Anonymous Here he can use his energies in helping others who are in the same situation He needs a good diet with plenty of fresh fruits and fruit juices At the same time he should avoid strong condiments, such as pepper, mustard, and chilli He **should not smoke**, *for this may only increase his desire for alcohol* His meals should be well planned, and he should take multivitamin tablets, particularly those containing the B complex vitamins, and ascorbic acid or vitamin C Above all, he must develop a strong religious sense, asking for Divine help every hour and every day for victory in this greatest battle of his life.

*Drug Addiction*

Drug addiction is a sad state of mind and body which may follow the prolonged use of some strong drug or medicine. Not all who take pain killing drugs will become addicted to them, but they could if they continue to use them over a long period of time Habit forming drugs include alcohol, morphine, heroin, dilaudid, opium,

and such synthetic drugs as Demerol (Pethidine) Marihuana, cocaine, and the amphetamines are also widely used today But the most common drugs are the sedatives, such as phenobarbital and similar sleep producing drugs Thousands of people die every year because of barbiturate poisoning, most of these being suicide attempts.

Unfortunately, many young people today become addicted to drugs for no other reason than the desire for a thrill, or because someone has dared them to try some drug such as marihuana or "goof balls' containing barbiturates and Dexedrine Sometimes an alcoholic is given a narcotic drug to aid in overcoming his addiction to alcohol but there is danger that he might become dependent on the new drug All drug addicts are socially maladjusted

**Treatment** Proper treatment depends upon the type of drug being used, the age of the patient, and how long he has been addicted to it. Usually the younger the patient the better the results of treatment. More stubborn cases should be treated in hospital, under the care of a doctor who specializes in this type of therapy For home care, follow the suggestions on page 526 under treatment for problem drinkers, for the two conditions are very similar

*The Depressed Patient*

Patients with nervous problems are either neurotic or psychotic, as outlined on pages 509 and 510 These two groups are fairly well defined Actually they have little in common, except in the case of the deeply depressed patient in which case the distinctions are not so clear

Individuals suffering from the more pronounced types of mental disorder are sometimes said to be insane but the term **insanity** is a legal one, not a medical term An insane person is one who cannot distinguish right from wrong or assume responsibility for his own actions In the case of a psychotic patient the whole personality is involved, and he is completely out of touch with the real world around Not so the neurotic patient. Only a small part of his personality is involved Psychotic patients often require hospitalization, neurotic patients rarely do, unless they have some additional physical problem

Another distinction between these two major groups is that the psychotic patient is usually brought to the doctor by his friends, while the neurotic comes of his own accord He knows he is sick, and he



A persistent abnormal mental condition indicates that professional help is needed.

which unless checked, will lead on to an exhausting state of delirium. Following this the patient may descend into a severely depressed state, pacing the floor, wringing his hands and blaming himself for all the problems of life. He is deeply suicidal and should be watched every minute, as suggested on page 529 A manic-depressive person may go through these peculiar cycles once or twice in his life or perhaps more

frequently, often riding the crest of the wave and then dropping down into the deepest gloom During the active phase he may create marvellous works of art or he may become a great success in business, only to lose everything during his depression

**Treatment** Unfortunately, there is no cure for this condition, but much can be done to help the patient Suitable **tranquillizing drugs** will help to control his agitation and keep him within normal bounds. During the depressed phase of the illness, he may need a few electroshock treatments Every precaution must be taken against suicide by following the suggestions outlined on page 529

*Involutional Melancholia*

Involutional melancholia is a depression that generally comes on during later life The patient has feelings of impending disaster and may be too depressed even to eat or speak. This is really an **agitated depression,** marked by **anxiety** and **restlessness.** These patients will often pace the floor, pull their hair, wring their hands. They frequently suffer from sleeplessness and loss of appetite. They have false notions about their bodies, and may believe their blood is turning to water or that their stomachs are filled with concrete They suffer from headaches and strong **guilt feelings** Such people should be treated in hospital Almost all of them will benefit from **electroshock** treatments They should also be given some suitable tranquillizer such as Librium, 10 mg every four to six hours, to tide them over the worst of their depression Most of them recover well with proper treatment and care.

Some older people may suffer from a paranoid type of melancholia or **involutional psychosis.** These folk have all the symptoms mentioned above plus some of the delusions seen in paranoid schizophrenia Many of them are shy, introverted personalities, unable to meet the stress and strain of middle life Here again electroshock treatment is often a life-saving technique. If this fails, a lobotomy (brain operation) may be indicated With proper treatment most of these patients will eventually make a fair recovery

*Schizophrenia or Split Mind*

Schizophrenia, a term meaning 'split mind," also known as *dementia præcox,* is a very serious form of mental illness. Most often

it strikes in the earlier years of life. The true cause of this is not known.

Schizophrenic patients are always a little odd in their reactions. Where the normal person may feel like weeping, the schizophrenic either giggles or shows no outward expression. On the other hand, he may cry when others laugh He fluctuates from one extreme to another One moment he may be full of affection, the next he is all anger and resentment His behaviour is completely unpredictable. He may babble on about nothing, then suddenly withdraw from the world and speak to no one for weeks at a time. Such are the peculiarities of this disease

There are four main types of schizophrenia. They are not sharply divided but tend to blend into one another **Simple schizophrenia** usually begins during late adolescence. These patients appear careless and apathetic and may lapse into **juvenile delinquency** or **prostitution** Most "beatniks" probably belong to this group The patient has an odd appearance and his actions are peculiar He has a silly smile on his face, lives in a world to himself, and tends to withdraw from normal associations with others.

The **hebephrenic patient** is even more odd His illness generally begins at an early age and is characterized by fits of silly laughing He often assumes a peculiar facial expression, and insists on wearing the strangest combinations of colours All his ideas are weird and absurd, and he soon loses touch with the real world around him Such patients should be treated in a proper psychiatric institution

**Catatonic schizophrenia** is another form of this disease. It comes on later in life, usually in the middle thirties, and may follow some intense emotional experience or disappointment. The patient assumes a negative attitude and may refuse to carry out the normal activities of life, such as bathing, eating, and talking He suffers from delusions and hallucinations, hears "voices," and sees people who are not present. At times he will offer no resistance, but if placed in a certain position will remain there for long periods of time. Strange as it may seem under proper treatment the outlook for this condition is often better than for the other types of schizophrenia

**Paranoid schizophrenia**, as noted on page 511, is the most dangerous form of this disease. Here the patient has a well functioning intellect. He sees and hears all that is going on around him, but unfortunately he has a **persecution complex** and suffers from **delusions** and strong feelings of **jealousy** He is very **suspicious** of others

around him Much of the time he may appear quite normal But at any moment his smouldering resentments may come to the surface, and he will not hesitate to injure anyone if he thinks that person "has it in for him" He may even commit murder

All too often relatives and friends of the paranoid schizophrenic patient fail to recognize the danger until it is too late Because they are anxious to give him the benefit of the doubt they refuse to see the peculiarities in his mental make up He is very tricky and watches every move He has a remarkable memory for names dates, and events He makes use of all these in an attempt to "get even with the world, and especially with anyone whom he believes to be his enemy

**Treatment** Tranquillizing drugs, such as chlorpromazine, 50 to 100 mg three or four times a day and Reserpine are widely used today, particularly in patients who are excited or disturbed These and similar medicines help to relieve the emotional tensions and allow the patient to make a better adjustment to the world around him Another useful treatment is electric shock therapy The patient is placed on a treatment table and given an injection of some suitable short acting anæsthetic As soon as he falls asleep electrodes are applied to the sides of his head and a carefully controlled electric current is passed through his brain Electroshock treatment is not expensive It can even be given to elderly patients without any danger

Patients who do not respond to this may do well under insulin shock therapy Failing this the patient may need a prefrontal lobotomy **Psychotherapy** and group therapy are also useful in treating these patients, but the healing process cannot be hurried It takes time for a disturbed mind to find its way back to reality

Any form of schizophrenia is serious but most patients will benefit when given the proper care under the guidance of a qualified doctor Like most heart and diabetic patients schizophrenic patients cannot be cured, but they can be greatly helped through the worst stages of their disease After a full course of treatment many of them can return to society and carry on their normal work This is particularly true of the catatonic and paranoid types of schizophrenia

### *Developing a Cheerful Outlook*

In all these different forms of mental illness it is most important to develop a happy outlook on life Many patients act like



A cheerful outlook, a sense of humour and an abiding faith in God will carry us through the trials of life

spoiled children They feel deeply hurt when they cannot get their own way all the time. Mature people never act like pampered children Things cannot always go the way we would desire. We must learn to work in harmony with others, in spite of our different points of view It is so easy to make mistakes that raise tensions within us, leaving the mind troubled and distressed

Laughter and tears are the best antidotes for failure. These are Nature's ways of releasing our inner tensions and *bringing us back* to a more normal way of life. Have you ever noticed how difficult it is for a depressed person to either laugh or cry? He may make an attempt but it is never genuine, probably because he is so obsessed

with his own feelings of frustration If he is of a suspicious nature, he is busy trying to measure the motives of those around him

Many of these nervous people have memories like tape recorders They never forget a single detail Every unhappy scene is minutely observed and carefully memorized, while here and there a few extra touches are added These typical paranoid traits often indicate a far more severe underlying mental illness Such people need professional help They should not try to follow advice from amateurs

A good memory is a wonderful thing, but there are times when it is more important to forget This is not always easy, especially if we happen to be the injured party But if we are ever to really enjoy good health, there may be some things we should forget

Most neurotic people are self centred This is not unnatural We are all a bit that way But many neurotic people use their various "symptoms,' such as nervous vomiting, megrim headaches, and palpitation, to get their own way They may not always realize what they are doing but they often force the rest of the family to conform to their wishes In the end no one is happy, everyone is miserable Mature men and women are never like this They are always busy helping other people, and by doing so, they have already gone a long way toward really successful living

One of the most valuable assets in life is a good sense of humour If we will only learn to laugh and take ourselves less seriously, we can usually overcome our most difficult handicaps Things cannot always go the way we would like, but even this may be a real advantage in the end We still have much to be thankful for, in spite of occasional set-backs The thorns of disappointment are often accompanied by roses of opportunity and challenge So let us dwell on the happier side of life A spirit of gratitude will do much to restore both mind and body

Make friends with the great writers of the past The reading of good books will help us to forget our disappointments and failures and our thwarted ambitions Try to develop a firm faith in the future. In spite of all the chaos in the world, God still has His hands on the helm, not only in the affairs of nations, but also in our own lives. He knows what is best for every one of us. His guidance means far more than all the medicines in the world.

# ENDOCRINE DISORDERS

Did you ever wonder how in the world all the various organs of the body know what to do and when to do it? With so many different parts all working at the same time it would be easy to produce too much of one thing, too little of another This is exactly what happens when we are ill, especially if the trouble is due to some endocrine disorder, such as thyroid disease or diabetes. The menopause, or change of life, is another endocrine condition arising from too much pituitary action and not enough ovarian response.

Two major control systems regulate all the functions of the body One is the great central nervous system which we have already discussed on page 480 The other is the endocrine system with its small but highly important organs, such as the pituitary, thyroid adrenals, sex glands, and several more

All the rapid motions of the body, including the movements of the arms, legs, and fingers are under the voluntary control of the brain and central nervous system Equally well-controlled, but through the autonomic or automatic nervous system are the organs that have to do with our digestion, breathing, elimination, and circulation None of them could carry on without this centralized control

The endocrine organs are also governed by the autonomic side of the nervous system. Their functions are very different from those of such organs as the heart or lungs. These little endocrine organs may appear small, but they are of great importance for they control all the various chemical reactions of the body They regulate the rate at which these chemical substances diffuse or pass through the membranes of the cells They also govern the rate at which the body grows and the time when it should stop growing! Between them they control the rate at which these chemicals are produced in the various organs of the body Sometimes these changes are seen at once In other cases, several days or weeks may be needed before the full effects are seen

*Powerful Hormones*

These powerful chemical substances, known as hormones, are produced in small endocrine glands in various parts of the body Most of these chemical substances are first absorbed or taken into the blood stream and then carried to more distant parts of the body, where they exert a very striking effect upon some particular organ or system However, some hormones do all their work in the local areas where they are secreted, as occurs at the synapse or junction of one nerve with another

To illustrate the enormous importance of hormones in the human system, take a look at any growing schoolgirl At six or seven years of age she is not very different from boys of the same age Her height and weight are about the same, and her body contour shows very little difference from that of boys But what a contrast when you measure her height and weight at fourteen Now she is taller and heavier than boys of her age for her menstrual cycles have already begun She is still clumsy and awkward, and her face may be covered with pimples, but she is now well on her way toward physical maturity

At eighteen she may be a perfect picture of young womanhood, with beautiful skin, eyes, hair, and an attractive appearance that is in every way a striking contrast to the young men of her age. What gives her those beautifully rounded limbs that soft skin, gentle voice, and appealing features? The answer is found in those wonderful hormones within her body In her case, the credit must go largely to the female hormones with which nature has endowed her

Now for a real contrast, let us take a look at her brother At ten years of age he is a wild, free running, energetic lad with almost no inhibitions At fourteen he is even worse! He is noisy, clumsy, and often thoughtless of family and friends When he speaks his voice growls like a ferocious bear, and then suddenly trails off into a high-pitched falsetto which he cannot control If you look close, you might find a few stray whiskers beginning to grow on his chin

His hands are big and out of all proportion to the rest of him He seems to need a larger pair of shoes every six weeks! Like the teen-age girl, he is always hungry His face, chest, and back are covered with numerous pimples, boils, and other skin blemishes, all of which point to dramatic changes taking place within his body At eighteen he is still not fully grown, although he is inclined to be

a little more sensible by now He likes noise and competitive sports and is still far from being under the control of anybody, including himself At twenty five he is physically mature and may now be making some headway toward intellectual maturity as well.

All these striking changes are brought about by the actions of the endocrine glands The boy becomes a man because of the male hormones within his system Should anything interfere with the normal development and functions of these glands, enormous and often disastrous effects will soon be seen throughout the whole body

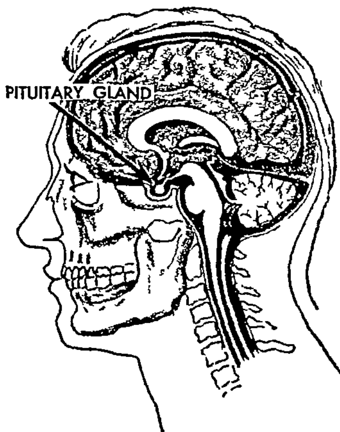
Hormones are powerful chemical substances that awaken and activate all the cells of the body When a person is in good health, each endocrine organ produces just the right amount of hormones to keep the body operating in perfect balance. Each endocrine gland keeps watch on all the others, raising or lowering its own production to meet the needs of the body as a whole

## *Pituitary Gland*

Located right in the middle of the head behind the eyes and above the nose, is a tiny organ no larger than a good sized pea This is the pituitary gland in some respects the most important endocrine gland in the body It takes orders in part from the central nervous system The pituitary produces many different hormones. Most of them direct the activities of other endocrine glands of the body

Small as it is, the pituitary has two distinct parts. Hormones from the front portion of the pituitary gland control the adrenal glands, thyroid gland, the growth hormone, also the female menstrual cycle, as well as regulating the sex hormones of both sexes. The back part of the pituitary gland puts out another set of hormones that determine the amount of water filtered and re-absorbed by the kidneys and also other hormones that affect the uterus and milk glands of the breast.

Should any of these powerful hormones fail to appear at the right time, striking changes are bound to occur in various parts of the body altering a child's development and the normal functioning of the body in later life Failure of somatotropin the growth hormone interferes with the normal development of the cells When enough somatotropin is present, protein is produced in ample quantities within the body At the same time surplus fat is used up In other




The pituitary most important gland in the body, is located at the base of the brain.

words, the growth hormone helps to produce a body that is well balanced and of normal size and shape Without an adequate supply of somatotropin, a child may become a **dwarf** and cease growing at a certain age This may result from some disease or tumour of the pituitary gland

Normal body growth usually stops when a person reaches eighteen or twenty years of age. However, when very large amounts of growth hormones are produced during adolescence, the bones may grow rapidly and the individual may become a **giant**. Such a person may also develop diabetes, owing to changes in the beta cells of the pancreas If this abnormal pituitary condition can be diagnosed soon enough, further excessive growth may be blocked by radium or X-ray radiation to the pituitary gland

**Acromegaly** is a rare condition of the pituitary occurring in older people whose bones continue to grow after the epiphysial lines

have closed In this case, the individual cannot grow taller but the *bones and soft tissues become thicker* Certain areas, such as the bones of the head, face, hands, feet, nose, forehead, and lower jawbone, may all become larger than normal The jawbone protrudes forward while the forehead slants back. *The nose may increase* to twice its normal size, and the fingers, hands, and feet may all double in size. Other organs, such as the tongue and liver, may also be greatly enlarged Treatment by radium and X ray will usually stop any further overgrowth of bones, but unfortunately it has no effect on the tissues that are already too large Early diagnosis and treatment are essential in preventing further changes

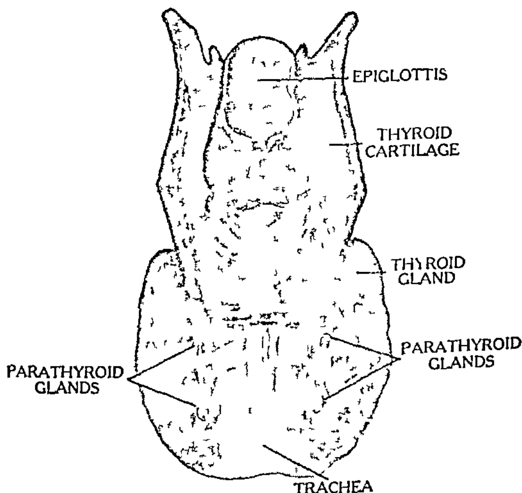
*Thyroid Gland*

If you put your finger on the front of your neck just below the larynx or "Adam's apple, you may feel a small mass of tissue on each side of the trachea or windpipe. This is the thyroid gland, a very important structure that has to do with the metabolism or rate at *which food substances are used in the body*

When the basal metabolism is below normal, a person tends to be slow in his movements He feels the *cold* more than other members of the family, and may have marked dryness of the skin along with *constipation* and a tendency to put on *weight* His hair is dry, thin, and coarse, and the skin appears dry, scaly, and thickened There may be puffiness in his face, especially around the eyes. The tongue is usually large, the pulse is slow and regular, and the patient often complains of vague pains in the back and stiffness in the joints

This is the typical picture of **hypothyroidism** or myxedema, resulting from insufficient amounts of thyroid hormone (mainly thyroxin) being produced in the body The trouble may also stem from some pituitary deficiency, but is more likely due to some inborn error of the thyroid gland The change usually comes gradually and involves the patient s personality and also his ability to think.

Hypothyroidism is seen in both sexes, but is far more common in women Most of these are overweight and may complain of a heavy flow during menstruation The heart is often enlarged, and there is a high level of cholesterol in the blood stream The diagnosis is usually made by the P B I (protein bound iodine) test, in which a small amount of blood is withdrawn from the vein and sent to the laboratory for special studies Radioactive iodine uptake ($I^{131}$)




Structures of the neck, showing large lobes of the thyroid and the small parathyroid glands.

is also valuable, if there is any doubt about P.B I A normal level for P.B I ranges from 4.5 to 8 Anything below this is likely to be hypothyroidism Anything above means hyperthyroidism, or too active a thyroid gland.

*Simple or Adolescent Goitre*

A simple colloid goitre usually arises from deficiency of iodine in the diet, and is most frequently seen in young girls during early adolescence It may also develop during pregnancy In the early stages a simple goitre usually appears as a soft, symmetrical enlargement of the thyroid gland The P B I test is generally low This soft swelling in the neck is not due to a malignant tumour, nor does it have to be removed by surgery, except for cosmetic reasons,

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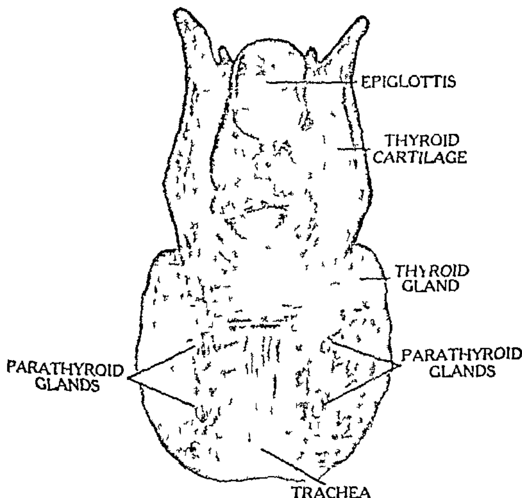
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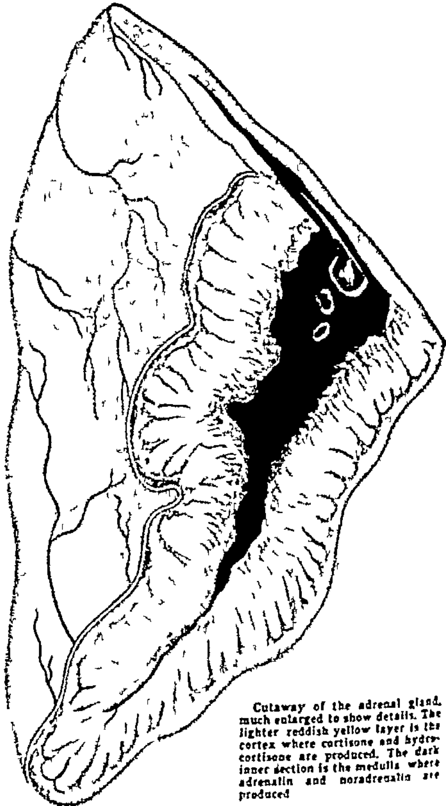
or if there is pressure on the structures of the neck Treatm simple. Iodine should be given in some form, preferably as Hyd Acid Syrup, one-third teaspoonful daily, well diluted in water this daily for three weeks, and then repeat in three months again at the end of six and nine months, and one year Most goitres can be prevented by the use of iodized salt.

*Hyperthyroidism*

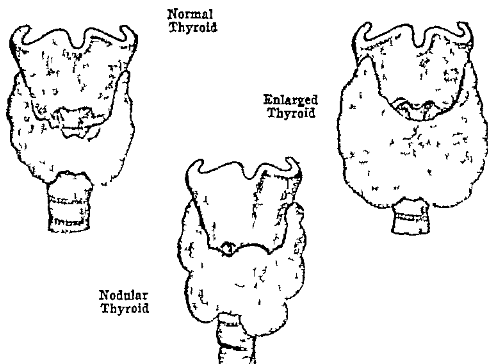
Hyperthyroidism, also known as Graves' disease or thyrot cosis, is a serious condition of the body, arising from too much acti in the thyroid gland The excess amounts of thyroid hormone p duced by the overactive gland will then raise the metabolic rate the body The true cause of Graves disease is not known, but it d seem to run in families and is most likely to develop during so emotional or physical stress The basal metabolic rate is elevat and the P.B I will be more than 8 micrograms per 100 cc. of bloo At the same time the cholesterol level is usually low

A patient with this disease is usually *nervous* weak, sensitive t heat, sweats frequently, is overactive and often *underweight* in spit of an increased appetite There is a fine **tremor** in the fingers, and th patient often complains of **palpitation** of the heart In many of thes cases there will be **bulging of the eyes** The heart is overactive and usually enlarged, and the pulse rate is rapid and may be irregular owing to atrial fibrillation Any infection or unusual stress such as sur gical operation, may bring on a **thyroid crisis** or storm When this occurs all the symptoms are greatly increased and the heart is very rapid Both the P.B I and the radioiodine uptake are high The patient eats heartily but continues to lose weight because of the higher rate of metabolism within the body

**Treatment** People whose thyroid glands are only mildly toxic may be given a trial of iodine, five drops of saturated solution of potassium iodide per day or they can take 10 drops of **Lugol's** solu tion twice daily **Propylthiouracil**, 50 to 100 mg three times a day, will usually bring some improvement, although this is slower than using iodine. Surgical treatment (subtotal thyroidectomy) is recom mended if there are nodules or large cystic areas of disease within the thyroid gland. A single nodule is more likely to be cancerous. Prior to surgery the patient should be given a course of iodine and pro-



Cutaway of the adrenal gland, much enlarged to show details. The lighter reddish yellow layer is the cortex where cortisone and hydrocortisone are produced. The dark inner section is the medulla where adrenalin and noradrenalin are produced




pylthiouracil to reduce the toxic effects of the thyroid gland during the first few weeks of treatment

Radiation treatment, using **radioiodine,** is now available at most large medical centres In many cases this is the treatment of choice, provided the patient is not pregnant Surgery is best if a nodular goitre is present. Patients with severe heart disease should be given radioiodine

Nodule goitres are more common after thirty years of age, and one must always be suspicious of **malignancy,** especially if there is only one nodule. If the mass is hard and irregular, it is more likely to be malignant A soft swelling is more apt to be benign If the nodule is growing rapidly or is pressing on the trachea or other structures in the neck, surgery is always advisable The patient should try to rest, and must avoid the use of alcohol, and be sure to use iodized salt.

*Parathyroid*

Just behind the thyroid gland on each side of the neck there are several tiny pin-sized organs known as the parathyroids They control

the rate at which calcium and phosphate are used by the body They also strongly influence the function of vitamin D and the formation of bones and teeth Vitamin D affects the delicate lining of the small bowel (mucosa), *increasing its ability to absorb calcium* Thus we see that although these parathyroid glands are very small, they play a vital part in maintaining the strength of the body

If the calcium level drops, the muscles go into spasm (tetany) To prevent this, the body must draw on the calcium supply within the bones, decreasing their mineralization, making them weak and easily fractured This decalcification or loss of calcium from the bones increases the calcium level in the blood and may then produce **kidney stones** The patient may also complain of muscle weakness, lack of appetite, nausea, constipation, along with pains in the bone and frequent urge to drink and also to urinate Thinning of the bones may produce **spontaneous fractures** and a collapse of one or more of the vertebræ in the spine This decreases the body's stature, so that a person *becomes stooped and shorter These unexplained fractures* and the kidney stones also make one suspicious of some disease involving the parathyroid glands

Once the diagnosis of too much parathyroid activity is made, the parathyroid glands should be removed as soon as possible to prevent further damage to the kidneys Following surgery the patient is given a high calorie diet, supplemented by extra amounts of vitamin D 50,000 units daily, plus the use of calcium gluconate pills, one to two grammes by mouth three times a day for at least six months to a year

At least 5 per cent of all *kidney stones* are believed to be due to overaction of the parathyroid glands Whenever kidney stones occur, a careful evaluation should be carried out, including the level of calcium in the blood stream, to be sure the trouble is not due to hyperparathyroidism or too much parathyroid activity Changes in the kidneys and abnormal functions include very frequent urination and an abnormal need for liquids Pains in the bones are often due to osteoporosis of the spine, and the individual may notice that he is losing height. There may also be pancreatitis because the pancreatic ducts are plugged with calcium This may lead to abdominal pain X rays of the bones may show the changes, all of which point to the fact that though these glands are of pin head size, they do have an enormous effect upon the whole body

*Adrenal Glands*

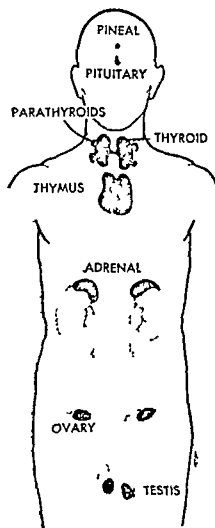
Throughout this book reference has been made to ACTH or adrenocorticotropic hormone This is a highly complex chemical or hormone put out by the pituitary gland Its function is to regulate the production of cortisone and hydrocortisone, two of the body s most important hormones These powerful hormones are produced by the adrenal gland, a small triangular shaped gland lying just above the kidney on each side of the abdomen The outer surface of each gland is known as the adrenal cortex This is where these vitally important hormones, the corticosteroids, are produced The adrenal glands also produce small amounts of both male and female hormones

Other hormones produced by the adrenal cortex regulate certain minerals in the blood stream, particularly sodium, potassium, and chloride Still other hormones from this same very small gland raise or lower the level of glucose in the blood stream and also have direct effects upon the protein and fat metabolism of the body The chief mineral regulating hormone is aldosterone which is truly a life-saving hormone, for without it the sodium and chloride concentrations in the body would be greatly reduced, resulting in shock and sudden death An increased production of this hormone promotes alkalosis, while a decreased secretion leads to acidosis This important hormone also changes the level of sodium and potassium within the individual cells of the body, increasing the one and lowering the other, so that during certain types of illness large quantities of potassium may be lost Aldosterone also has a marked effect on the **blood pressure,** any increase causing a sudden rise in the pressure, and thus increasing the workload of the heart

Other hormones that govern the metabolism of fat and protein also help us to resist different types of physical and mental stress

The very delicate balance within the tissues of the body must be maintained at all times, otherwise we would soon become dangerously ill The acid base balance is preserved by certain "buffer salts" in the blood stream which shift either to the acid or alkaline side, so that the $p^H$ balance between acid and alkali is always very close to normal When the $p^H$ falls below normal a condition known as acidosis develops. When the $p^H$ rises above normal, alkalosis develops.

One can readily understand how important the endocrine glands




Endocrine organs of the body are ductless glands which include the pituitary thyroid, parathyroid adrenal and sex glands. These produce hormones which have their own particular functions to perform and are important for normal body growth and regulation.

are to the body for every other organ is dependent upon the level of the chemicals, minerals, glucose, and other substances governed by them in preserving the vital forces of life itself Any disease condition that decreases the normal output of hormones from the adrenal cortex will produce widespread changes throughout the body The adrenals can be destroyed by infection such as tuberculosis or perhaps by a tumour

Most often the true cause of adrenal insufficiency or **Addison's disease** is not known. The patient complains of weakness and easy fatigue, and usually there is an increased *pigmentation* in the skin, particularly over bony prominences and in scars and folds of the

skin. There is marked *weight loss* due to dehydration or loss of fluids from the body The blood pressure falls, and the patient loses his appetite and suffers from nausea and vomiting and even diarrhœa. Such a patient must be carefully studied and an accurate diagnosis made, preferably in hospital, especially during the acute crisis Adequate fluids must be given, along with sodium to bring the blood level back to normal. Hydrocortisone or one of the steroids must also be given to increase the appetite, restore the weight, and bring the mental processes back to normal

The reverse of adrenal insufficiency is seen in Cushing's syndrome, in which the adrenal cortex produces too much hormone, the trouble being due in many cases to a tumour of the adrenal gland Such conditions are fortunately rare, but they do occur and are particularly noticeable in women who develop male characteristics, including beard and other masculinizing effects If possible, the tumour should be removed by surgery

*Diabetes*

The pancreas is a large digestive organ lying behind the stomach and across the back portion of the abdomen Most parts of this large gland are busy with the normal processes of digestion through the pancreatic enzymes But one small portion known as the "tail" of the pancreas has an entirely different function, for it belongs to the endocrine glandular system It secretes two hormones, insulin and glucagon **Insulin** has much to do with the metabolism of the body It is produced in the beta cells Glucagon is probably manufactured by the alpha cells of the pancreas Insulin is the powerful hormone that aids the body in storing nutriment, instead of allowing it to drain away in the urine

Some people are unable to produce enough insulin to meet their own needs. Lacking sufficient insulin, their blood sugar or glucose rises to a high level while the cells of the body do not receive their normal supply of nutriment The excess glucose then spills over into the urine This condition is known as **diabetes** This disease is a strange, complex condition Not only is the pancreas involved but other organs including the adrenals, pituitary thyroid, and probably the liver If it continues for a long time the patient becomes weaker and may eventually die from malnutrition The diabetic must therefore do one of two things He must either cut

down on the food he eats, or else provide the body with sufficient insulin to meet its needs

***Danger Signals.*** *In* severe uncontrolled diabetes the patient suffers from extreme thirst. He also loses weight in spite of being hungry *and consequently* of eating heartily At the same time he excretes abnormally large quantities of urine because the nutriment from his food is constantly draining away This lowers his resistance to infections He may suffer from chronic skin trouble and constant fatigue Cuts and bruises heal slowly, if at all

Many diabetics do not have such marked conditions, for in the early stages the symptoms are less evident But unless properly treated they may go on to much more serious trouble The younger the patient, the more serious the disease, and usually the more rapid its progress the greater the need for immediate treatment.

Diabetic patients must realize that they have a disorder which continues for a lifetime In the majority of cases *there is no cure* for this disease The patient must learn to live with his disability He must know the pitfalls and how to avoid them The two most serious dangers are diabetic acidosis which results from too little insulin or too much food or perhaps the presence of an infection, and insulin shock which arises from taking too much insulin or too little food

**Serious Complications** The human body is a living engine It constantly requires food or fuel to keep it going The foods we eat are either used in a short time or else they are carefully stored by the body, either as carbohydrate or fat The body prefers to use carbohydrate or sugar but when these are not available it will use fats When fat is utilized by the body, certain acid substances are produced known as ketone bodies. This is a perfectly normal process that occurs all the time. But in uncontrolled diabetes enormous quantities of ketones are produced These disturb the normal acid base balance of the body, resulting in severe acidosis To combat this acid condition, the body then calls on its supply of sodium, potassium, and calcium in an attempt to neutralize the acidosis This means that these chemicals are lost to the body and a toxic condition develops, affecting the brain, the central nervous system, and also the heart. Unless properly treated, the patient with acidosis will die

During pregnancy diabetes can be serious. Diabetic babies always weigh more than normal In fact, the larger the baby the more

likely he is to have diabetes, and so also his mother All pregnant women should have a blood sugar test taken two hours after a normal meal If the sugar shows higher than normal, treatment should be started at once.

**Obesity** Older people often tend to gain weight and at the same time many of them will develop a mild form of diabetes because of a strain on the pancreas Merely bringing the weight down to normal will often solve the problem of diabetes during the older years However, any sudden gain in weight will cause the diabetes to return It is very important for older people to keep the weight down to normal

**Heredity** A family history of diabetes is always important, particularly when the disease develops in children All children with a family history of diabetes should be carefully checked They should have their urine tested for sugar two or three times a year, and should also have a blood sugar test if there is any suspicion of diabetes in the child

**Infections.** Diabetic patients are very susceptible to infections of the skin, such as boils, carbuncles and generalized **itching** Tuberculosis is four times as frequent in diabetics as in the general population Whenever a person develops a boil or other skin infection, his urine should be tested for the presence of sugar

**Arteriosclerosis** Hardening of the arteries occurs much more frequently in diabetic patients This is particularly true in the lower extremities where deep **ulcers** may form in the feet or legs and **gangrene** may result from secondary infection **Heart attacks** are also more common in diabetic patients because of arteriosclerosis in the coronary arteries

**Cataracts** occur more frequently in older diabetics and also in patients who have had diabetes for five years or longer **Diabetic retinitis,** a most serious condition involving the eyes, tends to come on in diabetic patients when the disease is not properly under control This condition is more frequently seen in diabetic children

**Kidney Problems** One of the most serious complications of diabetes is known as the Kimmelstiel Wilson syndrome a condition in which the kidneys are damaged, probably because of uncontrolled **diabetes** The patient loses **albumin,** suffers from **high blood pressure,** and later also from swelling or œdema of various parts of the body Younger diabetics are more likely to develop these serious kidney

*complications* Such patients must guard against all types of infection at all times They should test their urine every day, preferably in the early morning, and also occasionally at midday as well

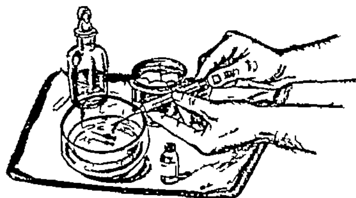
**Treatment** The diabetic patient must realize that there is no simple solution to his problem Nor can he be cured by having an operation He must learn to regulate his diet carefully and also to test his own urine for the presence of sugar If necessary, he must learn to give himself injections of insulin, so that he can avoid the serious complications just mentioned He cannot afford to take chances. He must be continually alert, developing good habits of living, while at the same time keeping his diabetes under control

Diabetics who are **overweight** should bring their weight down to normal by gradually reducing their dietary intake. However, any sudden weight loss could be serious in a diabetic. All infections must be quickly cleared up, especially if they involve the feet and legs. *Diabetic gangrene* of the feet *is a very serious complication*

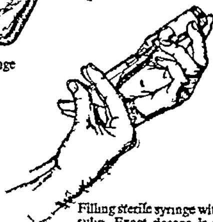
Omit all free sugar from the diet, including candy, cake, ice cream, jam pastry, and fruits preserved with sugar Limited amounts of bread, potatoes, rice, cornstarch, and similar carbohydrate foods can be taken The patient should *limit himself to three slices of bread* a day, depending on how severe his diabetes may be. Each case must be carefully worked out by the family doctor Fresh fruits and vegetables are highly desirable, but these should be selected from those which have a low sugar content. Protein foods may *be used freely* and also some fats may be needed but the total daily intake of foods should not be more than 1500 to 2000 calories a day, unless otherwise specified by the doctor Diabetic women who are pregnant, and young children, will need more calories *Extra vitamins should* also be taken especially when the patient is on a limited diet.

*Test the urine every day* Discard the first specimen upon arising in the morning for this is the urine that has collected in the bladder during the night Make your morning test on the next specimen This will be a more accurate indicator of your status. One simple reliable method is the Clinitest method in which five drops of urine are placed in a test-tube and ten drops of water added One Clinitest tablet is dropped into the tube, which is allowed *to stand* for fifteen seconds, then shaken gently and compared with the colour chart If the colour is blue the urine is sugar free If it is olive green or orange, there is sugar present in the urine.

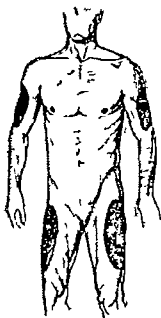
ADMINISTRATION OF INSULIN



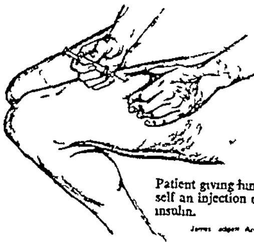
Sterilizing the needle and syringe



Filling sterile syringe with in sulin. Exact dosage is most important.



Usual sites where insulin is in jected. A different spot should be selected each day Injections must be given deep in muscle



Patient giving him-self an injection of insulin.

James Adgett Arnar

**Insulin.** Aside from diet, insulin is the most important factor in the treatment of diabetes Most people use U 40, which means 40 units of insulin per cubic centimetre Thus if your doctor orders 20 units of insulin, it would mean .5 cc If 60 units were required, the dose would be 1.5 cc. Just be sure you take the dose at the proper time, preferably in the morning Various forms of long-acting insulin are available, the three most frequently used today being Lente, NPH, and Globin insulin Be sure you take your insulin each day If you work hard or exercise vigorously on some days, you may either have to take more calories or use less insulin than on other days

**Insulin Reaction** When a person takes too much insulin he begins to feel hungry, turns pale, perspires, has a rapid pulse, and feels weak The immediate treatment for this is a glass of orange juice or some candy or a lump of sugar For more serious complications an injection of **glucagon** will quickly raise the blood sugar and bring the patient out of insulin coma Diabetic patients should carry a little candy with them at all times to use in case of emergency They should also carry an identification card stating their condition and where to find their doctor

Older patients with milder diabetes may not need insulin Certain tablets, such as **Orinase** and **Diabinese**, are very useful in older patients with milder forms of the disease However, these patients must also carefully regulate the diet. Unfortunately, the tablets are not very effective in children or young people.

*Skin complications* are common in patients with uncontrolled diabetes Wounds tend to heal slowly, and **boils** and **carbuncles** may appear Often there is severe itching in the skin under the breasts armpits, in the groins, and around the genital and rectal areas. If gangrene develops in the feet amputation may be necessary *Treat all foot infections seriously* Do not take chances with this disease. Proper care of the feet is most important for all diabetic patients. However, the more severe complications are usually best treated in hospital

### *Glucose Tolerance Test*

The simplest test for diabetes is to test the urine for sugar or glucose. A more accurate method is the *blood sugar test* Some diabetics show little or no sugar in the urine but the blood sugar level may be very high The normal fasting blood sugar level lies some-

where between 80 and 120 mg After a regular meal the blood sugar level will rise to 150 mg, owing to the absorption of food from the gastrointestinal tract. This rise then stimulates the pancreas to put out insulin, and this lowers the level of the blood sugar If the figure goes much above 170 mg within the first hour or two after a meal, the *glucose tolerance* test should be run For this test several samples of blood are drawn at frequent intervals after a meal and carefully charted to show the actual level of glucose in the blood This procedure is simple and accurate and an excellent guide to therapy

*Low Blood Sugar*

Low blood sugar, or hypoglycemia, may sometimes occur in people who do not take enough protein in their diet This is more or less the opposite of diabetes Instead of the blood sugar being high, it is lower than normal In some rare cases, the islet cells of the pancreas are producing too much insulin This may be due to a tumour, or perhaps to some disturbed function of the liver, pituitary, thyroid, or adrenal glands

This lack of balance between the endocrine organs produces a marked fall in the glucose level of the blood The adrenal glands then pour out more adrenalin which in turn causes **sweating, trembling** and a **feeling of weakness** Some patients also complain of **head ache** and **disturbances of vision**

These attacks usually come on after the patient has gone several hours without food He may complain of *numbness, dizziness*, and *palpitation* of the heart. Most cases are not too severe, but most of the patients feel hungry, and may tend to eat too frequently to combat the hypoglycemia and emotional instability The same thing is true of diabetic patients whose blood sugar tends to fluctuate more widely than desirable

It is always important to make a correct diagnosis. If a tumour is present it can usually be removed by surgery However, in most cases there is no tumour The condition arises from some local disturbance for which no true cause can be found The patient is advised to take a **high protein diet**, avoid the excessive use of sweets, carbohydrates, and sugars. Be sure to have a good breakfast. If you must lose weight, it is wiser to cut down on other meals.

Many doctors have noticed that merely putting the patient at



Proper care of the feet is most important for all diabetic patients. *Infections can be serious when neglected.*

rest in a quiet environment will often relieve these strange episodes of low blood sugar or hypoglycemia, so that eventually the condition may almost disappear This is largely a functional disturbance for which a tranquil mind is highly important Nervous strain and anxiety may be relieved by some simple sedative, sometimes even by an aspirin tablet

# MALE SEX CONDITIONS

The sex glands in the human male are located in the scrotum, a tough fibrous bag suspended from the groins Each gland or testicle is composed of myriads of tiny coiled tubes in which the sperm cells are produced As explained on page 148, one of these sperm cell fertilizes the female ovum or egg cell at the moment of conception

The testes or testicles also produce that important male hormone known as testosterone, the chemical that brings about such striking changes in the male during adolescence When a boy suddenly begins to mature under the influence of testosterone, his bones lengthen and his beard begins to grow Hair appears on his body, and he develops strong muscles and a deep voice The testes must constantly produce testosterone throughout a man s life, otherwise he will soon lose his normal male vitality

Tumours and swellings often occur in the male sex organs Some are serious, others are not. But a careful physical examination should always be made, not only of the tumour itself, but of the entire body Fortunately, in most cases no malignancy is found But cancers, when present, usually grow fast and spread rapidly Treatment must be carried out without delay, for once a tumour gains a foothold, the chances of making a complete recovery may be slim indeed. The following are some of the more common tumours or swellings in the male

**Undescended Testes or Cryptorchidism** *is a condition in* which one or both testes may have remained in the abdomen, instead of coming down into the scrotum at birth During the first few weeks or months they may seem to disappear on some days and be present on others This is not abnormal But if they do not come down at all and the scrotum remains empty a course of special hormone injections should be given Sometimes the testicle will come down into the scrotum as soon as a boy reaches puberty *If this does not occur,* surgery is advisable, mainly because the undescended testicle may later turn malignant.

**Torsion or Twisting** In most boys the testicles become firmly fixed to the scrotal wall However, if this does not occur, the testicle may become twisted, causing severe strangulation and swelling in the testes and cord The patient complains of sudden, *severe pain,* similar to that of a strangulated inguinal hernia Surgery should be carried out without delay, preferably within the first hour or two after the twisting has occurred The testes on the other side should be attached to the scrotal wall to prevent recurrence

**Male Weakness** Most cases of sexual **impotence** are due to a lack of normal sexual desire, rather than to any deficiency of hormones Emotional factors, including anxiety and worry, may bring on feelings of guilt and weakness, and this may interfere with normal male sex life. It may be wise to talk this over with the family physician or perhaps a psychiatrist

**Hydrocele** This is one of the most common forms of scrotal tumours or swellings It is not malignant. In this condition a thin watery fluid accumulates within the scrotum, usually after some injury When small, there is no discomfort, but as the hydrocele continues to enlarge, it may cause great inconvenience There is no pain or tenderness The diagnosis is usually made by holding a flashlight behind the swelling preferably in a darkened room If the light passes through the skin and the fluid is clearly seen on the other side, the swelling is probably due to a hydrocele There may also be a hernia, with perhaps a loop of bowel down in the sac. One simple treatment is to draw off the excess fluid with a large needle and syringe When very large, the hydrocele should be removed by surgery

**Mumps Orchitis.** This is really a complication following the onset of mumps in the neck and face When the testes are involved, there is pain and tenderness in the scrotum and considerable swelling The patient may also complain of fever, nausea, and vomiting Keep him in bed and completely at rest. Use a towel or some other means to support the scrotum, and apply hot and cold applications for 20 minutes three times a day until the swelling subsides

**Epididymitis,** or inflammation of the epididymis, almost always arises from some urinary infection involving the bladder, prostate, or some near by organ Usually there is a severe pain in the involved testicle and also in the vas deferens, or tube leading to the prostate gland In some cases the original infection may have spread from

other areas of the body, such as the nose, throat, or bronchial tubes. During the acute stage, there is severe pain, swelling, tenderness in the involved area, with reddening of the scrotum, and also chills and fever

*Keep the patient in bed, and elevate the scrotum on a broad bridge of adhesive tape across his thighs.* Hot and cold compresses should be used several times a day Some patients may prefer an ice bag for relief of pain and tenderness Epididymitis can usually be controlled by penicillin, 600,000 units a day being the prescribed dose. Terramycin, 250 mg four times a day by mouth, may also be used A scrotal suspensory will provide comfort, especially when *the patient is up and about*

If the swelling is due to **tuberculosis,** the patient should be given the same oral treatment as outlined for other forms of tuberculosis (see page 303)

**Varicocele** Swellings or varicosities often occur in the veins of the spermatic cord and may possibly be due to some obstruction in the vein higher up The condition tends to come on suddenly and is often accompanied by pain in the scrotum radiating to the groin and down the inner side of the thigh The dilated tortuous veins feel like "a bag of worms.' During the acute stage the patient should rest in bed, elevate the scrotum on an adhesive bridge or towel, and apply cold compresses. Later a scrotal suspensory should be worn to relieve pain and discomfort Cold baths taken daily are advised for this condition In more severe cases, surgery may be needed, but medical treatment should always be tried first

**Spermatocele** is a cyst or swelling in the upper pole of the epididymis due to the presence of large quantities of sperm cells Surgery is usually recommended when the cyst is large and causing inconvenience.

**Change of Life** Unlike women, most men never experience any actual change in middle life. But a few may do so after some serious infection or illness particularly if the testes are involved. They should be sure to take sufficient exercise, a well balanced diet, and adequate periods of rest and sleep, and refrain from the use of alcohol.

**Venereal Disease** Syphilis is discussed on page 210, and gonorrhoea on page 212 Other venereal diseases include chancroid, in which painful ulcers form in the skin of the genital organs. These quickly clear up with sulpha drugs or chloromycetin Two 250 mg capsules

should be taken four times a day for at least two weaks **Granuloma inguinale** is a chronic ulcerating disease in which large areas of the skin in the genital area may become ulcerated It is relatively pain less and responds well to either streptomycin (one gram daily) or chloromycetin as mentioned above **Lymphogranuloma venerea** is caused by a virus and usually starts with a small blister somewhere on the genital area along with a swelling or bubo in the groin Treatment is the same as for granuloma inguinale

**Male Sterility,** or failure to fertilize the ovum or female egg cells, may be due to several causes In some cases the trouble is due to an emotional factor, such as a mental block It may be caused by an absence or atrophy of the testes or perhaps by some obstruction in the male genital organs Infections involving the genital organs may result in the production of unhealthy or even dead sperm cells In such cases special tests may locate the seat of the trouble, which may be treated surgically

In cases of male sterility some doctors recommend 50 mg of vitamin E taken three times a day All deficiency states should be corrected by a sensible diet to which multiple vitamins are added

**Hernia.** Before birth the testicles are formed within the body close to the kidneys As the fœtus grows, these glands move down to the groin and pass into the scrotum, carrying with them the spermatic cord, along with blood vessels and nerves Failure to descend is known as **undescended testicles** Often the channel through which the testes come down fails to close, so that loops of bowel or omentum may find their way into the scrotum on one or both sides This is known as an **indirect inguinal hernia.** Weakness in the abdominal wall may produce a similar result, known as a **direct inguinal hernia.** Both conditions may occur in the male. A femoral hernia is usually more common in the ladies Some people try to get relief by wearing a truss, but in most cases the best solution to any hernia is **surgery**

**Strangulated Hernia** Sometimes a portion of the bowel becomes caught down in a hernial sac, resulting in a strangulated hernia This can be very serious, and may lead to complete **intestinal obstruction** and even severe peritonitis. Unless treated without delay, gangrene may eventually set in and the **bowel rupture,** so that the patient may go into severe shock and die

Such a condition calls for immediate attention If there is marked

swelling in the groin and the tissues feel hot and tender, keep the patient quiet and give him nothing by mouth except occasional sips of water Call your doctor or take the patient immediately to hospital. Do not apply any heat to the area, and avoid any pressure over the swollen area. An ice bag may help to control the pain Be sure to seek expert medical help without delay The sooner the strangulation is relieved by surgery, the better the patient's chances of making a complete recovery

**Testicular Tumours** are more likely to occur in early adult life. Most of them are highly malignant Within a few weeks they usually spread to the lymph nodes of the pelvis and lower abdomen The patient feels no pain and might overlook the condition, except for swelling of the testes following some minor injury Usually there is little discomfort except for a firm rubbery mass in the scrotum. Such a condition must always be carefully differentiated from epididymitis and hydrocele *Any mass within the testicle itself should* always be considered malignant until it has been proved otherwise by operation Surgery is the best treatment The involved testicle should be completely removed, and the patient should be given a full course of X ray radiation to all the pelvic organs

**Cancer of the Testicle** is fortunately not very common However, any hard, painless mass in the scrotum lasting more than a few days should always be completely removed by surgery Such growths are more common in patients with an undescended testicle. Some of these malignant tumours actually produce female hormones, causing certain feminizing effects on various parts of the body

*Scrotal swellings* may also occur from other conditions such as **filariasis or elephantiasis.** This is more fully discussed on page 386 Syphilis in the late stages may occasionally involve the scrotal organs *Cancer* may *also occur in the head of the penis although this occurs* far less frequently in those who have been circumcised *Any sore* on the genital organs, or elsewhere which fails to heal within a few days, should be thoroughly investigated to rule out the presence of syphilis, tuberculosis, and cancer

CHAPTER 49

# KIDNEY AND BLADDER TROUBLES

The human body is a living engine Like any other engine, it burns fuel (food) and requires a constant supply of oxygen, as well as water and various important chemical substances Once these various food materials have reached the organs of the body they are quickly utilized for energy and for repairing damaged tissues

All of this means that there is a constant building up and breaking down of tissue, a process known as *metabolism* In this process a considerable amount of waste material must be removed if the body is to stay healthy Part of this waste material is given off through the lungs in the form of carbon dioxide, other waste products being eliminated through the urine.

These many and various activities are carried out mainly through the circulation of the blood. The blood stream itself is a very complex fluid, consisting of myriads of cells along with buffer salts, proteins, amino-acids, glucose, and other food materials, all of which must be kept in constant motion by the heart

Constantly keeping check on all these living cells and chemicals are two remarkable organs—the kidneys They alone determine what materials are to be preserved and what must be eliminated from the body Although they appear rather small organs, between them they contain some 200 kilometres of tubing—over two million **tubules,** each about 1½ inches long At the top of each little tubule lies the **glomerulus,** which consists of a little tuft of blood vessel where most of the chemicals and fluids are constantly being filtered out.

Most of these filtered fluids and materials are reabsorbed into the blood stream so that only the unwanted chemicals remain in the urine This reabsorption takes place in the little tubules, and thus every drop of fluid in the body is checked by the kidneys many times every day Normally, the body filters about 300 litres of fluid each day, reabsorbing 299 litres and putting them back into the blood stream again and leaving about one litre of urine to be excreted from the body This is about the normal amount of urine passed each day

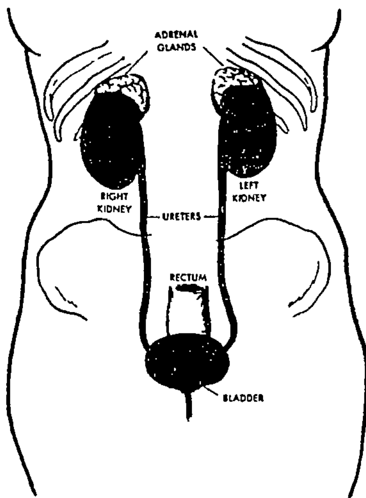
As the urine flows down the tiny tubules toward the centre of the kidney, it is finally collected in the renal pelvis. From there it finds its way down through the **ureters** to the **bladder**, where it remains until it is eliminated from the body

The amount of urine produced depends on how much water we take and also on the climate in which we live Heavy perspiration carries off large quantities of water so that the urine tends to become more concentrated, a condition that may lead to the formation of **kidney stones.** Under normal conditions a person produces more urine during the day while active, and less at night However, some elderly people have to get up frequently at night, possibly because of mild heart failure

A healthy kidney is usually able to eliminate almost any chemical not needed by the body, provided one takes enough water and other fluids When people take too little water, the urine becomes concentrated and this in turn may lead to chronic infections of the kidneys and bladder We are fortunate in having two kidneys, even though we can get along quite well with only one or even part of one. So if a person has a badly diseased kidney, it can be removed and he can still live fairly well

**Congenital Disorders.** Children are sometimes born with defective kidneys No one knows just why Often it is not too serious because the human body is well supplied with kidney tissue and such patients can carry on for years and not even know anything is wrong Many unusual kidney conditions can now be corrected by surgery But before surgery is contemplated on a diseased kidney, one must be sure the other kidney is working normally, for it is impossible to live more than a few hours without some kidney tissue functioning

**Polycystic disease** of the kidneys is a serious condition which begins before birth In this disease some of the tiny tubules fail to join up with the normal drainage system of the kidney The urine then collects in little pockets or cysts that continue to grow larger and may eventually burst The first sign of trouble may be the appearance of **blood** in the urine and pain on the affected side There may be an elevation of **blood pressure** Poor drainage of urine encourages infection, but with modern antibiotic medicines much can be done to keep these infections under control All such patients should be under good medical care.




The urinary tract showing kidneys, ureters and bladder in solid black.

*Bright's Disease or Nephritis*

**Nephritis** or Bright's disease, also known as **glomerulonephritis,** usually follows some streptococcus infection of the throat, or an attack of scarlet fever Shortly after the infection begins, the patient may suffer from puffiness in the face and swelling of the feet and ankles Often there is **blood** in the urine, and also **albumin** and **casts,** consisting of clumps of red and white cells that have come from the damaged kidneys All of this means that the normal filtering system of the body is no longer able to function properly This gives rise to the swelling or œdema in the tissues

This condition most often begins in childhood or adolescence, and most patients recover completely. But unfortunately one child in ten may develop the chronic type of nephritis, which may drag on for many years with the patient passing large amounts of albumin in the urine. Later the blood pressure rises and uraemia may develop. The patient now has to urinate more frequently, so that at night he may pass more urine than in the day. Unfortunately, the damaged kidneys cannot be restored, but even in the late stages of the disease the patient can usually live fairly well, provided he is given the benefit of good medical care.

A further complication, which is due to diabetes (Kimmelstiel Wilson's disease) is discussed on page 549.

### *Kidney and Bladder Injuries*

Any type of wound, injury, or heavy blow on the abdomen may involve the kidneys and bladder, and may thus seriously damage the filtering system of the body. Such injuries may be due to falls, car accidents, or direct blows over the kidneys. A full bladder may easily be ruptured, resulting in peritonitis. A fractured rib may penetrate the kidney or sever the ureter through which the urine passes down to the bladder. In any case considerable hæmorrhaging may occur, which may be followed by a serious infection.

All patients with any of these injuries are best treated in hospital, if at all possible. Large doses of antibiotics are usually needed and the damaged organs may need to be repaired or removed by surgery.

### *Cancer of the Urinary Tract*

Cancer is rather rare in the kidneys, the more common type being a hypernephroma which may spread to the bones. Heavy X-ray radiation may bring some relief. Cancer is more common in the bladder but may not be quite so serious. Blood in the urine is one of the first signs, followed by fever and pain. Any blood in the urine that does not clear up in a few days should be thoroughly investigated. But kidneys and bladder should be examined by X-ray for the presence of tumours, and it would be well to have a urologist pass a cystoscope into the bladder for further examination and treatment. There is no successful home remedy for this or any other type of cancer.

*Stones and Strictures*

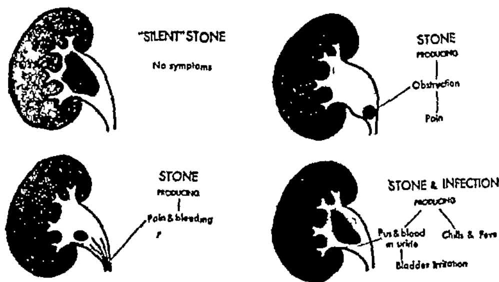
A stricture or narrowing due to infection may occur in any part of the urinary system, or the urinary tract may be completely blocked by a stone. This always leads to further infection and inflammation, as well as dribbling and lack of normal bladder control As soon as such trouble is suspected, some antibiotic such as Terramycin should be given, the usual dose being 250 mg four times a day Often this can be combined with a sulpha drug such as Gantrisin, two tablets three times a day until the infection subsides It is most important, however, to have the stone or stricture removed to prevent further trouble Strictures can usually be relieved by dilating the urethra, using metal sounds or similar instruments, a procedure that is uncomfortable but often beneficial, particularly in older women

**Kidney Stones** Various forms and sizes of stones may occur in any part of the urinary tract. They are most frequently found in the kidneys, and may cause considerable pain as they attempt to pass down the muscular tube or ureter on their way to the bladder Although we still do not know what causes kidney stones, they do seem to occur more frequently when the urine is highly concentrated from heavy sweating, or when a person is not taking sufficient fluids Kidney stones are three times as common in males as in females, and they also come on more frequently in middle life

Kidney and bladder stones are formed from the usual chemicals found in the urine, such as uric acid, phosphate, calcium, oxalic acid, and many more Too little vitamin A or too much vitamin D, because of overactivity of the parathyroid glands, may also produce kidney stones Patients with kidney stones should avoid taking too much milk because of its high calcium content Patients with gout are likely to develop uric acid stones

Small stones the size of gravel may sometimes pass down the ureter, causing obstruction and severe pain This pain is first felt in the patient's side and then seems to radiate down into the groin and thigh The patient may also suffer from nausea, vomiting sweating, chills and shock and the urine may be tinged with blood Very large stones may remain in the kidneys for years and never cause any trouble Smaller stones should be removed if they are too large to pass normally To be sure a stone has passed strain all the urine through fine cloth for several days and watch carefully for the presence of a gravel-sized stone

STONES IN THE KIDNEY




Illustrations of various types of kidney stones and their effects and symptoms.

**Hydronephrosis.** This is a condition in which the stone fails to pass and is not removed, and consequently the kidney that is affected becomes very large because of the urine that is being constantly produced and cannot drain away. Unless this condition is relieved, that kidney may soon be destroyed. Hydronephrosis may also develop from kinking of the ureter, or pressure from some other condition in the abdomen or pelvis. Some pain-relieving medicine must be given as soon as possible. This may be all that is necessary to relieve the severe muscular spasm in the ureter and allow the stone to pass normally. But in all such cases it is wise to see a urologist, or at least to have an intravenous pyelogram X-ray taken to determine if the stone has actually passed.

**Kidney Infection** Pyelonephritis, or kidney infection, may arise from a stricture, stone, or other obstruction, such as a rapidly enlarging uterus during the later stages of pregnancy Usually the patient complains of *chills* and **fever,** followed by **pain** and tenderness in the side over the kidney There may be **pus** in the urine, along with **albumin** and bacteria Women are more likely to develop this condition as a complication of pregnancy Pyelonephritis may occur in childhood, particularly in young girls

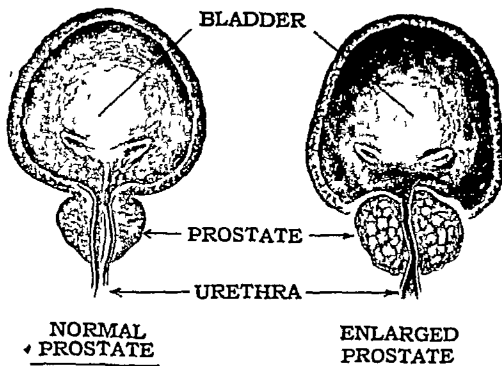
It is most important to find the true cause of the trouble, so do not begin treatment until all necessary tests have been done, including a culture of the urine Patients with serious kidney infections should remain in bed until the acute symptoms have subsided They should be given antibiotics as suggested in the Appendix Hot **sitz baths,** as described in the Appendix, are also beneficial in this condition Be sure the patient takes plenty of fluids, for this helps to wash out the germs and prevents the urine from becoming too concentrated and forming stones.

## *Prostate Gland*

During the later years of life, many men suffer from enlargement of the prostate gland This interferes with the normal flow of urine from the bladder, so that a low grade infection may develop and spread up the ureters to the kidneys The patient may complain of **chills, fever, pain** in the back and the side, as well as some discomfort and **slowness in urinating** He may also suffer from high blood pressure, headaches, fatigue, and anæmia As soon as the infection is brought under control, the patient should have an operation for the removal of the enlarged prostate gland Transurethral resection is the most frequently recommended prostate operation today **Cancer** of the prostate can often be kept under control by the use of very large doses of female hormone.

## *Tuberculosis of the Kidney*

Patients with tuberculosis of the lungs and other parts of the body may sometimes develop small tuberculous abscesses in the kidney Later these tend to break down, leaving ragged cavities, until eventually the whole kidney is destroyed Infection may also spread down




the ureter to the bladder, causing severe urinary burning and irritation The patient feels tired and may lose weight. The diagnosis is most often made by urine culture and animal inoculations Medical treatment during the early stages of kidney tuberculosis is similar to that outlined for tuberculosis of the lungs (see page 303)

*Bladder Infections*

Bladder infection or cystitis may arise from infections in other areas, such as the kidneys, prostate, or urethra Continual draining of pus and germs from an infected kidney as in pyelonephritis may injure the epithelial lining of the bladder Trouble may also arise from the presence of a stone in either bladder or kidney An enlarged prostate or some stricture or narrowing of the urethra may eventually wear down the resistance of the bladder wall, resulting in cystitis. Childbirth injuries and major surgical procedures within the pelvis may also lower the resistance of the bladder wall and predispose to the development of cystitis Uncontrolled diabetes is sometimes a factor There is also the problem of new brides who sometimes suffer from so-called honeymoon cystitis The bladder wall may become

swollen and ulcerated so that the bladder cannot hold the normal amount of urine Germs may then find their way into the bladder and bring about chemical changes in the urine, and thus calcium or lime may be deposited in the wall of the bladder, increasing the patient s discomfort

In most bladder infections the patient complains of **frequency** and **burning** on urination, as well as an almost continual **urge to void** There may also be a feeling of pain in the pelvis and lower abdomen Blood may be noted at the end of urination The patient may complain of **chills** and **fever,** perhaps due to bacteria finding their way into the blood stream The urine should be examined frequently for infection and a special type of intravenous pyelogram X ray made to rule out further trouble

**Treatment** In most cases of acute cystitis some **triple-sulpha drug** such as Gantrisin or Thiosulfil should be given three or four times daily for seven to ten days In more severe cases penicillin and other antibiotics may be needed, especially when the bladder wall itself is badly infected The patient should drink large amounts of fluids, eight to ten full glasses of water or fruit juices every day

Urinary irritation can often be relieved by the use of Azo Gantrisin, Pyridium, Mandelamine, and similar medications, three or four tablets a day of any one of these being the usual dose The urine may change colour because of the medicine This is not important. More resistant infections will often respond to **Furadantin,** the average dose being 100 mg four times a day

Because urinary infections arise from various causes, such as kidney abscess or injury to the pelvis, a thorough physical examination should be done. *Home remedies are never advisable in serious* urinary problems If the prostate is enlarged it may have to be either removed, or the normal urinary channel reamed out by a transurethral prostatectomy so that the urine may drain freely from the bladder Small stones can sometimes be removed through the urethra, but larger stones may require more extensive surgery

### *Controlling the Urine*

**Urethritis,** or inflammation of the channel leading from the bladder, may follow some specific infection, such as gonorrhœa or a streptococcus infection All the pelvic organs may be involved The

patient should remain in bed, taking **hot sitz baths** two or three times a day Short-wave diathermy is often helpful Antibiotic therapy is advisable in all such cases A combination of penicillin and streptomycin each day may be helpful

**Urinary Incontinence** Loss of bladder control may arise from various causes, including strokes, spinal injuries, pelvic conditions, and chronic infections The patient may lose control of the bladder and perhaps have no sensation in the pelvis, so that he cannot control the urine. The moment the bladder is filled it automatically empties. The only solution for this is to insert an **indwelling catheter** The patient should be given plenty of water, and the urine should be kept alkaline by means of ammonium chloride, one or two tablets four times a day Such diseases as syphilis, diabetes, pernicious anæmia should be promptly treated and the general principles of health followed as in all chronic illnesses.

## *Uræmia*

Uræmia is a toxic condition associated with **kidney failure.** Waste materials pile up in the body because they are not normally excreted in the urine. Uræmia may arise from many different conditions, such as nephritis, pyelonephritis, polycystic kidney, bladder obstruction, shock, burns crushing injuries, poisoning and failure of the heart.

The patient with uræmia may complain of headache, nausea, vomiting, difficult breathing, muscular twitchings, dryness of the skin, and bad breath In the later stages there may be marked restlessness, stupor, and even coma. The blood urea nitrogen test (B U.N ) may show marked elevation (up to 200 mg per cent), the normal being from 8 to 20 mg per cent The patient may feel weak because of **anæmia**, caused by urinary poisons depressing the bone marrow When the level of urea is high, there may be intense itching of the skin over most of the body Most uræmia patients manage to survive, and a few may actually recover provided the condition is not complicated by glomerulonephritis or toxæmia of pregnancy

Patients with chronic uræmia may continue for years in reasonably good health if the blood pressure remains normal But when large amounts of albumin are lost in the urine or when there is a severe obstruction to the urinary tract, the outlook is not too good. Should some other condition arise such as pericarditis or heart failure, the patient may not survive in spite of all that is done to help him

**Treatment** Remove the cause such as an obstruction, if at all possible Except in complete kidney failure, the patient should be given large quantities of fluid so that the urinary output is maintained at a high level (2500 cc or more per day) Great care must be taken not to give too much fluid when patients are able to pass only a small quantity of urine each day All patients suffering from uræmia should be under the care of a qualified physician, especially if acidosis is present Muscle twitching and jerking may be relieved by meprobamate, 400 mg by mouth three times a day

The diet should be low in protein, and the patient should refrain from vigorous physical activity until he feels better Anæmia patients should be given injections of vitamin $B_{12}$ 1000 micrograms intramuscularly each week to raise the hæmoglobin level of the blood. Severe itching may be relieved by hydrocortisone ointment applied twice daily

# THE FEMALE CYCLE



Childhood.



Adolescence, menstruation begins.



Adult woman.



Age of the menopause when menstruation ends.

CHAPTER 50

# WOMEN AND THEIR PROBLEMS

From the very moment a baby girl first arrives in the world her future is already laid out for her Unlike her brothers who can turn to various types of activity, the little girl is always first of all a *woman* Nature has given her the responsibility of producing the next generation, and for this she has been given wonderful organs of reproduction

Although these female organs are present from birth, it is not until early adolescence that they begin to develop and function From then on until the end of her life they are of deepest concern to her, for they are often subject to special types of illness, against which she must be constantly on guard

### *Female Hormones*

The maternal or motherly instincts of a woman arise almost entirely from the **female hormones** within her body These important hormones are produced in a pair of almond shaped organs known as the **ovaries.** They lie deep within the pelvis one on each side of the uterus or womb There are two major female hormones, **estrogen** and **progesterone** Both are produced in the ovaries under the direction of the pituitary, the master endocrine gland of the body, and both are necessary to give the woman strength and stamina and are largely responsible for the graceful curves and peculiarly feminine shape of her body

These female hormones change the texture of a woman's skin, the size and shape of her bones, the current of her thoughts and affect everything she does in life Estrogen, the dominant female hormone, gives her enormous drive and energy and great staying power, so that most women now outlive their husbands by several years

When a girl reaches eleven or twelve years of age, her ovaries begin producing large quantities of estrogen, causing her to grow rapidly and to develop into a normal young woman The next thirty five years are the reproductive period of her life when she can have children.

The adolescent years of the girl are frequently marked with stormy emotional upheavals that not only adults but even the girl herself may find difficult to understand

A young woman's female cycle may be compared to the ebb and flow of the tides on the sea shore. Each month she passes through this ever changing cycle in which she is never quite the same from one day to the next Even the direction of her thoughts may change from day to day, a fact that most men can never begin to understand! Male hormones are produced in more or less constant ratio, so that a man's body varies little from one day to the next. But women have *not only one hormone, but two, each produced in ever changing* amounts throughout her monthly cycle. Is it any wonder that women are much more changeable? This certainly adds great zest and variety to life

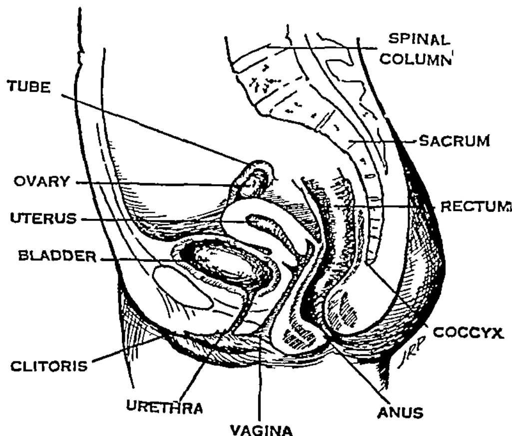
*Progesterone*

**Progesterone** has a special function of its own As stated on page 148 all human and animal life begins with some *form of ovum or egg* Many thousands of undeveloped egg cells are present in the ovary at birth Only a few of these ever mature and become ready for fertilization, one each month of a woman's menstrual life

As the little maturing egg cell finds its way toward the surface of the ovary, it becomes surrounded by a nest of special cells with a function all their own About eight or ten days from the beginning of the female cycle, a small blister forms on the surface of the ovary and the egg or ovum escapes, leaving the little nest of cells to form a small temporary endocrine organ known as the **corpus luteum**, which functions for about two weeks and then disappears Next month the whole process is repeated, the corpus luteum perhaps forming in the other ovary Here is where progesterone is produced, the function of which is described below

*Ovulation*

Ovulation is the time the egg cell or ovum leaves the ovary Some women experience a slight pain in the pelvis at this time, lasting perhaps a few minutes or longer When more severe, this pain has sometimes been mistaken for appendicitis, but ovulation is a perfectly normal function of the female body It is generally accompanied by a slight rise in temperature.




Women who follow the so-called rhythm method of birth control take their temperature before getting out of bed in the morning The normal temperature of the body is 98 6° F, but during ovulation it may rise to 99° The woman should not have actual sex contact during this time, unless she desires to become pregnant. In most young women ovulation is regular and usually occurs some time between the seventh and fourteenth day after the beginning of the previous menstruation

Following ovulation, the temporary corpus luteum gland, arising from that small nest of cells with which the ovum was surrounded, now begins to produce progesterone. This important hormone moulds and shapes the breasts for the primary function of lactation or milk production At the same time it causes the inner lining of the uterus to develop into a soft bed where the fertilized ovum or egg may rest

and develop into the new baby This happens every month If fertilization does not occur, this inner lining or decidua sloughs off and comes away during menstruation

Several days, perhaps a week, are needed for the little fertilized ovum to find its way leisurely down one of the Fallopian tubes or oviducts Meanwhile, it is growing rapidly, multiplying itself and producing numerous cells, leading on to the formation of a new human life which even at this point is still almost too small to be seen without a magnifying glass For more complete details, see Chapter 19

During the latter part of the female cycle both female hormones, estrogen and progesterone, fall to a very low level in the blood stream This leads to menstruation, which is really nothing more than the shedding off of the uterus in preparation for the beginning of a new female cycle Menstruation should normally continue for four or five days, and may sometimes be followed by a slight discharge lasting several more days Any bleeding or discharge continuing more than six or seven days should be considered abnormal and might be due to a lack of hormone balance within the body

### *Premenstrual Tension*

Just before menstruation some women become nervous and irritable and suffer from depression, headaches, fullness in the breasts, and swelling in the lower extremities This is probably due to increased hormone activity from the adrenal glands during the latter part of the menstrual cycle, causing retention of sodium and water in the tissues

**Treatment** Avoid using extra salt during these times of premenstrual *tension and swelling Further relief may be obtained* by the use of chlorothiazine, two tablets daily for the elimination of salt from the body This medicine eliminates the excess sodium and thus helps to relieve the headaches, nervousness, and irritability One or two aspirin tablets may also be used for very severe headaches.

### *Painful Menstruation*

Some mild discomfort is to be expected at the beginning of menstruation, although many women have little if any difficulty If there is severe pain it might be due to some abnormality that should be

corrected Some young women tend to magnify their symptoms, ap parently in an unconscious effort to gain sympathy But in other cases the pain may be due to some endocrine imbalance which may clear up entirely following pregnancy or satisfactory marital rela tions **Abnormal positions** of the uterus may also lead to menstrual pain or discomfort. Certain pelvic conditions, such as **endometriosis** and **fibroids,** are also a possibility But most of these conditions tend to come on later in life

Certain infections, such as syphilis, gonorrhœa, or tuberculosis, may sometimes cause pelvic pain which may be aggravated during menstruation Rectal conditions such as constipation may aggravate menstrual pain and discomfort Spinal deformities and poor posture must also be borne in mind Finally, there is the problem of emotional tension This always increases any menstrual discomfort and makes the woman more irritable

**Treatment** Encourage the girl to enter into **active sports,** for these always help to improve the pelvic circulation Special **exercises** to strengthen the back are recommended, but they must be taken in moderation The patient should not allow herself to become exhausted by too strenuous a programme at first. She should be sure to get adequate rest and sleep **Chronic constipation** should be relieved, as suggested on page 343 As far as possible, she should be encouraged to ignore the discomforts carrying on her regular daily activities. Some simple medicine such as aspirin may be given, but codeine and other habit forming drugs should be avoided except in cases of severe pain

Local heat applied to the pelvic area and the lower spine, as suggested on page 93, may also bring relief Some doctors give an injection of **progesterone** about seven days prior to menstruation This medicine decreases the uterine contractions and thus helps to relieve the pain The usual dose is 1 cc given intramuscularly every other day just prior to menstruation. Another useful medicine is **testosterone** or male hormone, 25 mg daily for several days before menstruation Both these medicines can be taken in the form of tablets Once relief has been obtained, further treatment may not be needed

### *Vaginal Discharge*

Recent investigations have shown that secretions from the uterus and upper portion of the vagina flow down and are reabsorbed in

the lower part of the vagina This is the normal, constant flow within the female organs The presence of infection in any of these tissues will usually cause a whitish discharge, called leucorrhœa, that may continue for weeks or months at a time This discharge may arise from **Trichomonas vaginalis**, an infection due to a small parasite that *normally inhabits the bowel* Other causes of leucorrhœa are pelvic congestion, endocrine disturbances, lacerations, injuries, and perhaps atrophy of the vaginal tissues following the menopause.

*In young girls the discharge may be due to an irritation of the* labia or external genital organs This may arise from various causes such as soiled undergarments, dirt, intestinal worms, or masturbation The irritated tissues may then become further infected with staphylococcus germs which are always present on the skin

Some excess secretion is to be expected when the girl reaches puberty, due to overactivity in her sex glands and organs This usually disappears within a short time Some young women have a slight discharge at the time of *ovulation,* but this is not abnormal, nor does it indicate the presence of any disease.

In mature women a profuse, yellowish discharge associated with burning on urination may be due to **gonorrhœa,** a serious infection that should be cleared up as soon as possible A thin, watery discharge may be due to the presence of **cancer** in the uterus or cervix, whereas a creamy discharge, slightly blood stained, may be due to **Trichomonas** or some other infection

During the child bearing years, from adolescence to the mid forties, infections may sometimes follow the birth of a child because the cervix has been damaged during delivery of the baby Unless properly treated, this infection may continue for months or even years and may spread to other areas of the genital tract, perhaps even leading to cancer

Along with the annoying discharge which accompanies this infection, there may be intense itching A Pap smear should always be done, and if there is a yellow discharge, a test should be made for the presence of gonorrhœa. Blood tests should also be taken to rule out syphilis, and a skin test should be done if tuberculosis is suspected.

**Treatment** Wherever possible, a direct diagnosis should be made by using suitable smears and other tests. Most germ infections, including gonorrhœa, will usually respond well to antibiotic treatment, such as penicillin, *600 000 units injected daily for several days,* or Ter

ramycin, 250 mg three times a day by mouth Trichomonas infections may be brought under control by taking a vinegar douche (2 table spoons of vinegar to a quart of warm water) once or twice a day, after which a vaginal suppository or tablet should be inserted in the vagina Floraquin (diiodohydroxyquin compound) has proved beneficial in many of these cases

For severe **itching**, some triple sulphonamide cream may be applied inside the vagina, morning and night, to control the infection In older women vaginal suppositories containing stilbestrol may be inserted once or twice daily for four to eight weeks Also a cream containing the hormone **estrogen** may be applied locally with benefit. For a more persistent infection of the cervix, electric cauterization may be necessary This can be done in the doctor s office It should be followed by a **vinegar douche** each night for two weeks Just add two tablespoons of ordinary vinegar to a quart of warm water In any persistent case of female infection, the husband should also be carefully examined and treated for any infection that may be present.

### *Female Fungus Infections*

Occasionally, the female genital organs are infected with **monilia** or some other type of fungus. This may sometimes occur during pregnancy, probably because of the increased sugar content of the blood Women suffering from **diabetes** are more likely to have fungus infections This may result in intense itching around the genital areas as well as a thick discharge from the vagina Often this arises from the use of broad spectrum antibiotics, because other useful organisms normally present in the vagina and rectum have been suppressed by these medicines This usually clears up soon after the antibiotics have been discontinued

**Treatment** Any tendency toward diabetes should be corrected without delay, as suggested on page 548 The patient should also take a warm vinegar douche, as suggested above, once or twice daily, after which she should insert a nystatin tablet (Mycostatin) or suppository Continue this treatment at least two weeks until infection is brought under control

### *Painful Intercourse*

Painful intercourse or dyspareunia may arise from muscular **spasm** of the vagina Sometimes there is a superficial **ulceration** fol

lowing some injury and the tissues are very painful to the touch. **Bladder infections** are not uncommon in such cases, and these may lead to further complications, as discussed on page 568 Painful intercourse developing in later life may be due to tightness in the female genital area following **surgery** The tissues may have been drawn too tightly together Almost any type of pelvic inflammation may cause pain during sexual intercourse But the most common cause of painful intercourse arises from nervous tension The woman may be unconsciously afraid of pregnancy, or she may have faulty notions about her female anatomy and physiology and her role in life. Other problems, such as body odours, halitosis, or lack of under standing on the part of the husband, may also cause her to resent marital relations

**Frigidity** Sexual coldness in women is far more common than lack of sex drive in men In women the trouble arises from lack of normal sex instruction during their early years. Some have the idea that all matters pertaining to sex are shameful and wicked Often this may be aggravated by lack of sufficient preliminary love-making by the husband Men tend to forget that women are more slowly aroused sexually, and as a result they are often left unsatisfied and disappointed. Sometimes the husband is incapable. This is discussed on page 557 Fear of pregnancy is also a factor in causing female frigidity Nervous problems may sometimes interfere with a woman's normal sex drive.

Every married woman should realize that marriages in which both partners are satisfied are more likely to continue. Women who are indifferent and who accept sex as mere duty may one day find *themselves facing the prospect of a broken home* Also, many wives who have missed the enjoyment of a normal sex life tend to become neurotic. Others tend to suffer from premenstrual tension. In all these cases the emotions always play a part.

It is a strange fact that some women can enjoy sex while away on vacation, but fail to do so on returning home and assuming the normal burdens of everyday living This shows how important it is that all women and girls understand fully the functions of their reproductive organs and the part they play in building and maintaining a happy home.

*Female Sterility*

Sterility or failure to have children may arise from several different causes Sometimes the trouble is due to the husband, as discussed on page 559 In a woman, sterility may be due to some **congenital** malformation that has existed from birth, such as an absence of the tubes ovary, or uterus Such conditions are rare. Pelvic infections, involving the vagina or cervix, are a more common cause of sterility Inflammation of the tubes may prevent the sperm from reaching the ovum.

Other conditions, such as **endometriosis** and adhesions involving the genital organs, may also interfere with pregnancy Lack of a normal menstrual cycle may also be a factor In some cases the real cause of sterility arises from emotional factors Many women who have waited for years for a family of their own have adopted a baby and then found themselves pregnant a few months later The very presence of a baby in the home apparently releases powerful maternal forces within the woman thus solving her problem

**Treatment** In searching for the causes of sterility a sperm count should be done on the husband to make sure there is no problem on the male side If any abnormality is found, he should be treated accordingly The woman herself should also have a thorough physical examination and all infections of the genital tract should be cleared up Her thyroid activity should be evaluated by the P B.I test as indicated on page 540 Special pelvic X ray tests may also be made to see whether her tubes are open Any tumours involving the uterus should be removed by surgery Ovulation may sometimes be stimulated by short courses of estrogen and progesterone, as outlined on pages 577 and 584 If after all such measures are carried out conception fails to occur, it may be wise to consider adopting a baby This will not only satisfy the woman s maternal instincts, but she may even give birth to a child of her own and thus meet the deepest longing of her heart.

*Heavy Bleeding*

Regular monthly bleeding or menstruation occurs in all women from adolescence to the end of the menopausal change of life. Some women also have a slight show of blood on the day of ovulation, midway between the regular menstrual periods This is not abnormal.

Heavy bleeding during the child bearing age may be due to miscarriage or **abortion**, or perhaps to an **ectopic pregnancy** Malignant tumours of the uterus and cervix may also result in vaginal bleeding Certainly all women with irregular or very heavy bleeding should have a Pap test done at least every six months. A small amount of material from the cervix is smeared on a glass slide, which is then stained by a special technique and examined by a competent pathologist. If in any doubt, the cervix *should be dilated under anæsthesia* and the inner lining of the uterus scraped out (D and C operation), and the materials so obtained should be carefully examined for the presence of cancer

Intermittent **spotting** may be due to cervical **polyp**, a condition more common in women over forty years of age All such polyps should be removed and examined for evidence of malignancy

Heavy bleeding may also be due to **fibroid tumours** and polyps within the uterus itself In such cases either the tumour or perhaps the entire uterus should be removed **Endometriosis** may also cause heavy or painful bleeding in younger women Various other conditions, such as blood diseases, heart failure, alcoholism, cirrhosis of the liver, vitamin B deficiencies, and any abnormality in either the thyroid pituitary, *or adrenal glands, may sometimes result in* heavy bleeding The patient should have a complete physical examination, including a careful evaluation of all the pelvic organs, even using general anæsthesia if there is very much pain

**Treatment** This depends on the cause Bed rest is always advisable following heavy bleeding The patient should be given a high protein diet and one or two multivitamin capsules or tablets each day If the woman has lost a great deal of blood, a transfusion may be needed Heavy bleeding following abortion usually requires a surgical *operation to clean out from the uterus any fragments of* the placenta that may still be present. This will usually stop the hæmorrhage

Bleeding arising from tumours of the uterus and other pelvic organs may need to be controlled by surgery If the woman is in mid pregnancy and suddenly begins to hæmorrhage, she should be rushed to hospital at once It may be too late to save the baby, but her own life may be threatened because of severe blood loss In any case, it is important to be sure all the products of conception are expelled *from the uterus, otherwise bleeding may not cease*, and there

is the further danger of serious infection within the uterus The D and C (dilatation and curettage) operation is advisable in all such cases

### *Ectopic Pregnancy*

**Ectopic** or **tubal pregnancy** is a rare complication in which the fertilized ovum or embryo becomes blocked in its passage through the Fallopian tube. There the embryo continues to grow as it normally would within the uterus However, the space within the tube is too small to allow much expansion, so that soon the tube may rupture, causing a serious **hæmorrhage** and also intense **pain** in the pelvis This may resemble acute appendicitis. Surgery should be done as soon as a tubal pregnancy is suspected, preferably before the hæmorrhage has occurred One or two transfusions may be needed to replace the blood loss.

### *Menopause or Change of Life*

The female reproductive time of life begins at adolescence in the early teens and continues until the end of the menopause in the mid or late forties Most women during their child bearing years have a regular monthly cycle, usually occurring every four weeks except during pregnancy Some time in the middle or late forties, many women suddenly become aware of increased nervous tension, menstrual disturbances, **hot flashes,** chilly feelings, excitability, easy fatigue, depression, **crying spells,** sleeplessness, **palpitation,** dizziness, headaches, numbness and tingling, and other annoying symptoms A woman experiencing these symptoms may feel absolutely miserable through no fault of her own All this misery arises from the fact that her ovaries are no longer producing their normal amount of estrogen or female hormone Not every woman will get such severe reactions as these

Anything that interferes with the normal functions of the ovaries may bring on these strange feelings. If the ovaries have had to be removed by surgery because of disease, the same thing will occur soon after the operation. The same is true after heavy X ray therapy or the use of radium Lack of normal hormone balance may result in a constant **backache,** due perhaps to **osteoporosis** (or thinning of the

bones), arising from a low level of estrogen in the blood stream. Unless properly treated, this may eventually lead to a collapse of one or more of the vertebræ, causing the woman to lose weight because of the bending and deformity of the spine

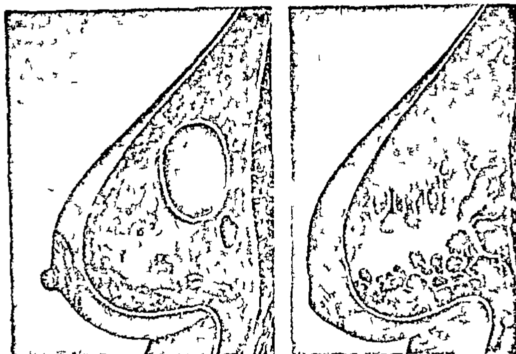
**Treatment** *More serious symptoms* of the menopause are quickly brought under control by the use of estrogen The usual dosage is 2 mg (20,000 units) given by injection each week until the patient is relieved Estrogen tablets, 1 25 mg, may be given once daily as a maintenance dose. Larger amounts of estrogen may produce bleeding and some soreness in the breasts This is an indication of overdosage However, there is little danger of overdosage, for once the patient is relieved of her discomfort she usually forgets to take the medicine and only returns to it when symptoms reappear

The *woman herself can usually tell how much medicine she needs.* She should take just enough tablets or injections to keep her comfortable and free from undue stress If she is very nervous, some simple tranquillizing medicine such as Butisol Sodium, ¼ grain two or three times a day, may be helpful during periods of undue stress and tension Even an occasional aspirin tablet may help to allay her fears and allow her to carry out her normal household activities without any difficulty *The menopause is a more or less natural experience* in life How severe it is will depend on many factors, such as previous surgery or radiation, but most of all on her family situation and whether she has a happy and contented mind

### *Cancer in Women*

In women the two most likely places where cancer may develop are the breasts and the uterus Both areas are easily examined and every woman owes it to herself to have this done periodically Far too many women die from cancer for no other reason than being too modest or too sensitive.

**Self Examination** *Every young woman should* be taught to examine her own breasts after each menstrual period Before dressing, she should lie on her back with a small pillow under the shoulder on the side she is examining This tends to flatten out the breast and makes the detection of any tumours that much easier Then using the soft, flat part of her fingers on the opposite hand, she should gently palpate or feel the breast tissues, outlining the normal curves of the breast and noting whether any small masses are developing either

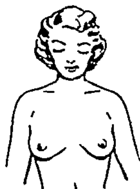


Breast tumours as seen at surgery Benign cyst on left rapidly growing invasive cancer on right.

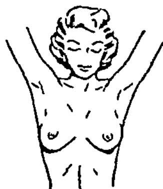
within the breast tissue itself or up in the armpit She should then place the pillow under the other shoulder and carry out the same procedure, using the other hand

Next, she should stand or sit before a mirror and carefully note the size and shape of the breasts, preferably with her arms above the head, at the same time leaning slightly forward By this means she will soon become very familiar with the normal shape and can readily point out to her doctor any change that may have occurred. If she finds anything unusual, she should report it to her doctor at once, for the earlier such abnormalities are discovered, the better the chances for her complete cure. Most tumours of the breasts are not due to cancer, but no one can tell what is going on without examining these tissues Having examined her breasts and finding nothing unusual she can then forget all about this until the end of the next menstrual period Protection against breast cancer is as simple as that, and many thousands of lives would be saved every year by just carrying out this simple procedure once each month.

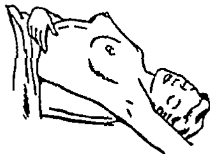
## BREAST SELF EXAMINATION



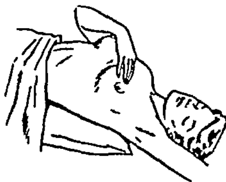
1. Carefully examine the breast before a mirror for symmetry in size and shape Note any puckering or dimpling of the skin or retraction of the nipple.



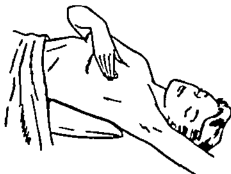
2. Raise arms over head. Again study breasts in mirror for same signs.



3. Recline on a bed with a flat pillow or folded bath towel under the shoulder on the same side as the breast to be examined.



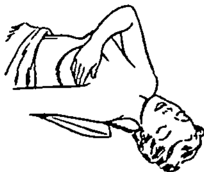
4. To examine inner half of breast the arm is raised over the head. Begin at the breastbone and in a series of steps, palpate the inner half of the breast.



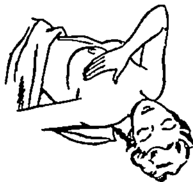
5. Carefully palpate the area over the nipple with flats of the fingers.



6 Completion of examination of lower half of breast.



7 With arm down at side continue examination of breast by carefully feeling the tissues which extend to the armpit.



8. Examine the upper outer quarter of the breast with the flat part of fingers.



9 With the flat of the fingers examine the lower outer quarter of the breast in successive stages.

**Breast Tumours** Any tumour or breast mass should always be carefully examined preferably by a surgeon The size of the mass should be observed and compared with any previous findings. As a rule, if there is only one single nodule or lump in the breast, this is more likely to be malignant, especially if there is *no pain* But whether the lump appears to be malignant or benign it should always be removed and examined by a pathologist This is a minor surgical procedure In large hospitals the tissue so removed is usually examined by frozen section while the operation is in progress If any malignancy is found the whole breast and all the lymph nodes in the armpit are then removed If the cancer appears to have extended into the neighbouring lymph nodes, the patient should be given extensive radiation therapy to the whole area However, all of this can usually be prevented by early diagnosis, provided a woman is sensible enough to examine her own breasts each month

*Is It Breast Cancer?*

Although a malignancy may develop in any part of the breast, the great majority of cancers occur in either the upper portion of the breast, toward the shoulder or else close to the nipple. Breast cancer may occur at any time of life, but it is much more common between thirty five and sixty five years of age After sixty five breast cancer is rare

When cancer is present in the breast, there is usually *one hard single lump* which may be fixed to the surrounding tissues Usually there is *no pain* In a few cases there may be a slight *bloody discharge* from the nipple, but this is not common A slight discharge may also occur in some benign tumours. In any case, it is always wise to have the tumour removed by surgery

**Painful Breasts.** Sometimes after the birth of a baby, a painful abscess may form in one of the breasts The patient should be given penicillin, at least 600 000 units daily by injection, or some other antibiotic, such as Terramycin or Achromycin, the usual dose being 250 mg four times a day by mouth If these fail to control the infection the abscess should be opened under local anæsthesia (ethyl chloride spray) and the pus drained out

**Chronic Cystic Mastitis.** This is really a degeneration of the breast ducts or tubules due to changes in the estrogen level of the blood. This

condition is often seen in women over thirty five They usually complain of mild tenderness in the breasts just before the menstrual period. The patient has an aching, heavy feeling in the breast, with perhaps an occasional stinging pain These benign cysts usually feel spongy or rubbery, which is quite different from the hard toughness of most cancers of the breast These lesions tend to fade away at the menopause and usually cause no more trouble In a younger woman it is most important to do a breast-biopsy operation, although it is always wise to observe the condition for a few weeks to detect any changes that may be taking place

*Pelvic Cancer*

**Cancer of the cervix** is a vicious killer of women today, yet it need not be, for the cervix is easily seen and treated, provided the diagnosis is made early Every woman twenty years and older should have a pelvic examination and a Pap smear at least once each year, and every six months if there is any suspicion of cancer or a history of malignancy among the other members of the family

Any watery discharge which continues more than a day or two should be investigated Usually it has no special significance, but in some cases it could mean cancer The same is true of unexpected bleeding, particularly if the bleeding or spotting follows intercourse or douching Most of these cases are not due to cancer, but the only way to be sure is to investigate Any *abnormal bleeding* with a tendency toward hæmorrhage should raise a woman's suspicions immediately If necessary, a diagnostic curettage (D and C operation) should be done.

Modern treatment for uterine cancer consists of implanting a *small amount of radium within the cervical canal for a certain number* of hours followed later by heavy doses of radiation therapy to the whole pelvic area. After such a course of treatment, the surgeon may still feel it wise to perform a hysterectomy, removing the uterus, cervix, ovaries and tubes From then on the woman must be under frequent observation by her physician for the next five years.

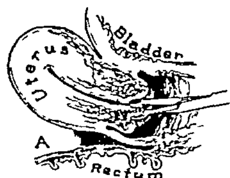
**Cancer of the Uterus** A less common type of uterine cancer, known as fundal carcinoma, may sometimes develop within the cavity of the uterus itself This is less malignant than cancer of the cervix, but without proper treatment the patient may still die Unfortunately, this type of carcinoma cannot always be detected by the Pap smear

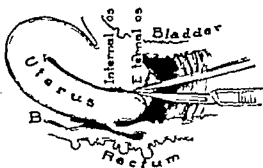






Cancer of the cervix is almost invisible at first. If untreated it spreads *through all organs of the pelvis.* A simple Papanicolaou test will reveal its presence.




When cancer is suspected a simple biopsy is the most accurate method of determining whether it is present. The procedure is painless, and there is no danger

The first signs of trouble may be a sudden hæmorrhage, not related to the normal menstrual cycle. This is more likely to occur in the later child-bearing years. Usually there is no pain. The only accurate test is the D and C operation (dilatation and curettage) in which the patient is given a general anæsthetic, after which the cervix is dilated and the uterine cavity completely scraped out. Material

obtained by this method is then examined by the pathologist, using special staining techniques

If cancer is found, a hysterectomy should be done without delay, for eventually the cancer cells may find their way into the abdominal cavity, and from there they may spread first to the local tissues of the pelvis by invasion, and then eventually throughout the whole body by the process known as *metastasis* Widespread radiation therapy may be wise in all such cases

**Endometriosis** is a troublesome condition arising because small bits of endometrial tissues have found their way outside the uterus into the abdominal cavity There they fasten themselves on the surface of the other organs causing inflammation and painful adhesions so *that the normally flexible organs now become fixed The patient may* then complain of painful menstrual periods

These little endometrial implants may also form tiny cystic structures which begin to secrete and grow, so that about the tenth day of the cycle the patient may complain of a mild aching in the lower part of the pelvis As these cysts continue to enlarge, they may cause an acute boring or grinding pain in the pelvis that finally remains almost constant This pain is likely to be aggravated by sex contact and is always worse just before and during menstruation This situation tends to get steadily worse until the menopause, after which it may disappear However, in some cases the painful adhesions caused by endometriosis may be relieved only by surgery

## *Ovarian Cysts*

Ovarian cysts are among the most frequent tumours in the human body Probably every woman at some time has had a small cyst on the ovary which may disappear spontaneously These are of no particular consequence. But when an ovarian cyst becomes large and causes distension of the abdomen and pressure on such organs as the bladder or rectum, it should certainly be removed **Cancer** may sometimes develop in the wall of an ovarian cyst and may then spread to other near by organs, causing obstruction of the bowel So although ovarian cysts are benign most doctors feel they should be removed by surgery without delay



Our eyes are among our most wonderful possessions. They should be well cared for

CHAPTER 51

# TAKING CARE OF YOUR EYES

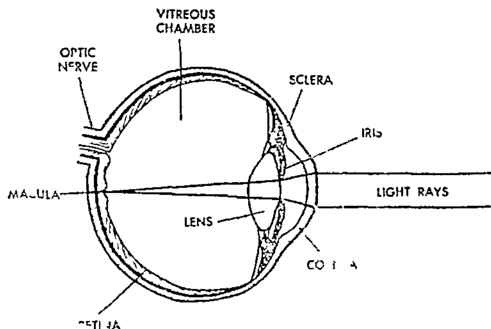
The human eye is not only beautiful, it is a masterpiece of design and expression, far more wonderful than the finest optical instruments made by man. True, your eyes may not be perfect, but even an imperfect eye can be very useful Most of what we learn is brought to us in some way through our eyes, and nearly everything we do is guided by what we see.

Here is a marvellous instrument, a living camera that can focus itself automatically according to the amount of light and the distance of the object we are looking at. Even more remarkable is the fact that we have two of these little cameras, each quite independent of the other, yet working together as one

Long before anyone dreamed of photography, motion pictures, or television, the human body contained these magnificent twin cameras that not only give beauty and expression to the face but inform us constantly of what is going on around us

Before we were born our eyes were already formed A few weeks after conception the tiny embryo has already begun to develop a miniature optical system Soon after the future brain begins to take shape, it sends out two tiny stalks to the front part of the head These are the **optic nerves.** On the end of each stalk is a little bulb or swelling—the beginning of the eyeball

There is nothing haphazard about this Every feature appears to be carefully planned in advance. At a given point of time, one tiny group of cells seems to detach itself from the surrounding membranes and to move to a central spot, forming a living lens of clear transparent material within the eye It seems so miraculous we can hardly believe it, but long before the baby is born, that little lens is already located at exactly the right distance from the cornea, or front window, of the eye Light entering the eye will pass through the lens and be properly focused on the screen at the back of the eyeball There it stimulates myriads of nerve cells, and these in turn transmit the message back to the brain, enabling us to see




The human eye is built like a camera.

The eyeball itself is composed of a tough elastic material called the *sclera* Covering more than half of the inside of the eyeball is a living screen the retina, the most important part of the eye. This special screen of nervous tissue is composed of millions of tiny cells some shaped like *rods* others like *cones* These special nerve cells are instantly affected by light rays of all colours The impulses caused by these rays are relayed back to the receptive areas of the brain

Light entering the cornea or clear front window of the eye, passes directly through the aqueous or watery, fluid to the lens of the eye After passing through the lens the light rays are bent and brought to a clear focus on the retina or curved screen at the back of the eye. The lens itself is very elastic and is composed of a strong elastic capsule, or covering, filled with a jelly like protein material consisting of transparent fibres When the lens is relaxed or at rest, *it assumes a shape similar to an ordinary magnifying glass.*

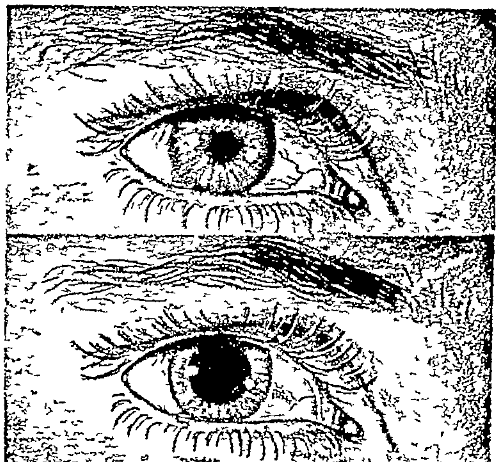
But there is a vast difference, for the lens within the eye can change its shape, increasing its magnifying power for fine work and decreasing it for distant vision All this occurs quite automatically by means of a circular muscle known as the ciliary body About seventy tiny ligaments stretch out from the edge of the lens to the ciliary muscle, and these hold the lens firmly in place. Movement of this tiny muscle within the eye allows the ligaments to either contract or relax This camera like mechanism within the eyeball operates quite automatically, so that under normal circumstances our vision is always in sharp focus

As a person grows older his eye lens loses its elastic nature and becomes relatively a solid mass, a condition known as presbyopia When this happens the eyes are more or less permanently focused and are no longer able to accommodate for both near and far vision This is why an older person often needs glasses with bifocal lenses, the lower portion of his glasses being of stronger power for close vision while the upper portion allows him to see more freely at a distance

The **iris** is a beautiful circular curtainlike structure lying in front of the lens of the eye Orientals generally have brown eyes but Western people may have brown blue, green, grey, or black, depending upon their family background

The iris has a very important function for it controls the amount of light that enters the eye The central black spot, or pupil, opens up wide in darkness but becomes narrowed and small in bright light This widening and narrowing is done by the iris which acts like the diaphragm on the camera allowing just the right amount of light to enter the eye, and at the same time giving a greater depth of focus when the opening is small Thus the size of the pupil is automatically adjusted according to the amount of light and sharpness of vision

**Colour Vision** In the retina or screen, at the back of the eye there are two types of nerve cells, the *rods* and *cones* Both are sensitive to light, the rods being specially important in a dim light, while the cones react to colour and fine detail You are using your cone cells as you read the words on this page. Notice how you can see this whole page at a glance In doing this you are using the rod cells which are widely spread throughout the retina But in reading the fine print you have to focus down on a small central spot, or fovea, on the retina where the cones are very numerous.



The eye adjusts to accommodate for light and for the distance of the object viewed.

The retina is well supplied with an important chemical substance called rhodopsin, or "visual purple." Light falling on the retina brings about certain chemical changes in the rhodopsin and other substances present in the rods and cones. These changes occur very rapidly, but large quantities of vitamin A are needed to bring this about. If there is any marked deficiency of vitamin A, night blindness may occur This can usually be corrected by administering suitable amounts of vitamin A in the diet.

Sometimes the optic nerves are injured because of high blood pressure or hardening of the arteries, so that light rays are prevented from reaching the rod and cone cells of these nerves. A blood clot in the ophthalmic artery may cause complete blindness on the affected side. Other serious diseases such as syphilis may also cause blindness.

The eye may be the first organ to show the presence of disease in some other part of the body.

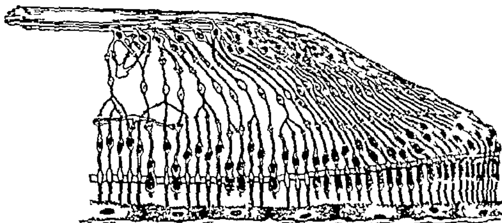
**Cataracts** are more often seen in older people, but they may occur at any time in life. A cataract is a cloudy, opaque area in the lens of the eye, arising from thickening of the protein substances within the lens itself. Later, a certain amount of calcium may also be deposited in the lens. Cataracts that interfere with normal vision can be removed surgically. The patient may then have to wear glasses with strong lenses to enable him to see clearly. In some cases contact lenses may be used instead of glasses to obtain good vision.

**Astigmatism** is an eye condition in which the vision tends to be blurred, in most cases because the eyeball itself is slightly out of shape. This condition, which often begins early in life, can usually be corrected by suitable glasses. These must be fitted by an eye specialist after proper testing of the vision.

**Colour Blindness** For some unknown reason, some people are unable to distinguish certain colours, such as red, green, or blue. Two per cent of all men are said to be blind to red, and an equal number are unable to distinguish green. Such colour blindness is very much less frequent in women. Only one woman in every 1250 seems to have any problem in distinguishing reds and greens. The difference between the sexes arises from the fact that colour genes are carried in the "X" chromosomes, the male having only one "X" chromosome in which all three colour genes must then be present, if he is not to be colour blind. Women have two 'X' chromosomes, and for this reason any form of colour blindness is very rare in women.

People who seem to wear outlandish colours may do so because of colour blindness. They may actually believe that a suit is grey, when in reality it is brown, red, or even green. Schoolboys who are colour blind often paint seas and lakes purple, thinking they are using green. Unfortunately, nothing can be done for these people. Most of them have to depend upon other features, such as size, shape, and texture, or the opinions of friends to guide them in their choice.

**Eye Movements** Three separate pairs of muscles are needed to control the movements of the eye. One pair moves the eyeball from side to side. Another pair moves the eye up and down, and the third group keeps the eyeball in an upright position in relation to the body so that we see objects as they really are. Each group of muscles has its own set of nerves.



Layers of the retina. Bottom of drawing shows the rods and cones (page 595) and their connections to the brain through the optic nerve (top left), greatly enlarged from original.

One muscle relaxes while the other contracts thus allowing normal movement of the eye. Through the central nervous system, both eyes operate as one single organ It is true that, if we desire some of us can cross our eyes for a few seconds, but the picture is a very confusing one.

Although the point of clearest vision lies immediately behind the cornea and lens as explained on page 593, our eyes also take in a much larger field of vision If we are looking straight ahead we can easily note some important object to one side or another We then immediately turn and focus our eyes on that object This wide peripheral vision is very important for our safety and well being

*Eye Troubles in Children*

A young child may complain about many things, but he will rarely do so about his eyes. His vision may be blurred, and he may even see double yet he will not mention it because he doesn't know how clearly he ought to see. If your child is not getting good grades in school the trouble may be due to poor eyesight Most of what the average child learns comes to him through his eyes This means that the child with poor eyesight may have difficulty in keeping up with other children who have better vision.

Many a child with poor grades in school has done well after proper glasses have been fitted Therefore, before your child goes to school he should have an eye test to be sure there is no weakness

that should be corrected He should also be given a complete medical examination, because serious conditions of the kidneys and other organs may first show up in the eyes

Proper eye care should begin even before the child is born Both parents should have blood tests made, preferably before their marriage, to be sure they are free from syphilis and all other serious conditions which may affect their baby's eyesight A child s eyes may also be damaged by such contagious diseases as smallpox, diphtheria, and gonorrhœa Even so mild a disease as German measles may cause serious deformities in the eyes if contracted by the mother in the first three months of pregnancy

Young children should always be protected against strong sun light, for this may damage the sensitive nerves of the eye Gazing at the sun without proper protection is also dangerous Even dark glasses cannot always be trusted, for the stronger rays of the sun may still come through.

### *Signs of Eye Trouble*

Many things can go wrong with the eyes of a growing child An observant parent may note one or more of the following signs of trouble

1 **Inflamed or watery eyes** may be due to rubbing of the eyelids It could also be a sign of eyestrain.

2 **Blinking and frowning** may indicate some eye condition that should be corrected

3 **Covering one eye** so that the other may see is another important sign of eye trouble The two eyes may not be in proper focus.

4 **Tilting the head** may occur because the child is trying to bring both eyes into focus.

5 **Frequent crying and headache** should also be investigated

6 Failure to take part in **outdoor games,** especially where distant vision is required, may indicate the beginning of eye trouble

### *Crossed Eyes*

Some babies appear to be cross-eyed almost from birth, but this is no reason for undue concern The baby's face is growing rapidly and many changes are to be expected But if cross-eye continues beyond six months, the child should be examined by an eye specialist. Crossed eyes can usually be straightened, provided the

treatment is started early enough. Even in later life the crossed eyes can still be straightened, giving the face a normal appearance, but by then the vision may be normal in only one eye.

Some parents unfortunately have the idea that the child will outgrow crossed eyes This is partially true, but at the same time something tragic is happening The child is probably suppressing the vision in one eye. By the time his eyes have straightened out, it may be too late to save the vision in the weaker eye, so that in future he will only have the use of one eye.

**Treatment** Place the child under the care of an eye specialist at once With careful training this condition may be corrected Proper lenses may be needed, and perhaps a surgical operation Whatever is required should be done while the child is still able to see with *both* eyes Children who still cannot see even with properly fitted glasses should be given school books with larger type

*Eye Injuries in Children*

Most children love to play rough games, and unless carefully supervised, they will use sticks and stones to fight miniature battles. Such weapons are dangerous, especially to a child s eyes So are air guns, darts, fire-crackers, caps, sharp scissors, slingshots, bows and arrows. Because boys use these more often than girls, they suffer from eye injuries more frequently

Young children enjoy cutting out designs in paper, but for this they should be provided with blunt-end scissors In choosing toys for a young child be sure they will not endanger his eyes Don t encourage him to open a tin or package with a knife or fork If he wants to help around the house, give him something he can do with safety Reasonable precautions during the early years will prevent many a needless accident.

*Proper Light for Reading*

Eye troubles in children are often due to using the eyes in a poorly lighted room The child s eyelids may be red and swollen and watering more than usual These are signs that all is not well Expert attention may be needed to correct some condition without delay The trouble may be due to poor lighting either at school or at home In school the light should enter the room from the left side of the



Eye troubles in children are often due to using the eyes in poor light. Be sure that your child has adequate light as it is necessary

student, never from the front No child should be exposed to the strong glare of the sun while trying to learn his lessons

Indirect lighting is best, both at home, at school, or at work. As far as possible, try to simulate daylight. Light-coloured walls and ceilings are best because they diffuse the light in all directions.

*Movies and Television* Do not allow your child to watch movies or television for long periods of time, for this puts added strain upon his eyes and his nervous system If a child cannot see well, or feels dizzy or has headaches after reading be sure that he has a complete eye examination If you notice that he holds books close to his eyes, or seems to be sensitive to light, or blinks frequently, he may need glasses. If so, they should be properly fitted by an expert in eye care. Guard well your child's vision, for the ability to see is one of life's greatest and most precious gifts to man

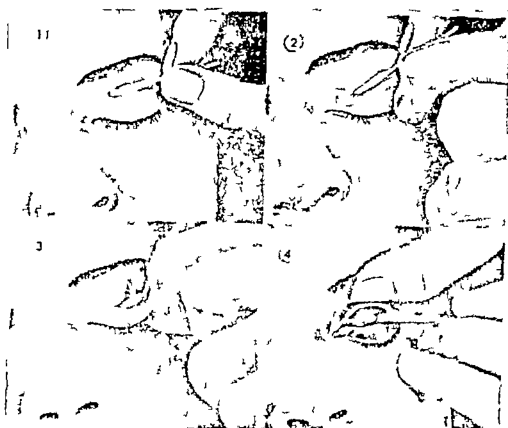


Illustration of how to remove a speck of dirt from the eye as described below

*Treating an Injured Eye*

When a small speck of dirt gets into the eye, there is an instant feeling of pain and a sudden outpouring of tears. Nature is trying to wash the foreign body away. Often this is all that is necessary, but there are times when the offending substance may find its way under the eyelid, where it is not so easily dislodged.

**Treatment:** Wash your hands thoroughly before attempting to remove the speck of dirt. Then, with the patient looking down, grasp the eyelid gently, holding it between the thumb and forefinger. With the other hand press gently against the skin of the upper lid, turning the eyelid inside out where you can easily see the speck if it is still present. Gently wipe out the dust, using the edge of a clean hand

kerchief Try to avoid touching the eyeball itself Carefully replace the eyelid and leave it alone If the foreign substance is embedded in the eyeball, take the patient directly to a doctor

*Treating a Black Eye*

The area around the eye is easily injured by a blow or by walking into a door or some other object in the dark Soon the skin around the eye turns black because many of the smaller blood vessels under the skin have been torn It is easy to laugh at such a person but there is nothing funny about an injured eye, for even a light blow may damage the retina permanently

**Treatment** Apply cold water to the injured area at once This will help to control the bleeding and relieve the pain Better still, wrap a small piece of ice in a thin cloth and apply this directly to the eye keeping it there until the pain subsides and the swelling goes down For a more serious injury, pour some cracked ice into a rubber glove, tying shut the open part of the glove, and apply this to the eye keeping it there several minutes at a time Repeat every fifteen or twenty minutes as long as necessary

If the eyelids are swollen because of insect bites or infection, add one tablespoon of Epsom salts and an equal amount of ordinary salt to a pint of boiled water Warm this solution before applying it to the eyelid, but do not make it too hot Dip a cotton pad or a clean handkerchief in the solution and apply directly to the swollen lid, keeping it there for several minutes at a time Repeat this treatment four or five times a day as needed

*Burns Around the Eyes*

Serious burns may occur at work and around the home Housewives may be in a hurry to open a bottle and accidentally splash some chemical into their eyes Plastic sprays, such as those used for refinishing furniture hair setting, or for repelling insects may cause eye trouble

**Treatment:** Wash out the irritating substance at once, using ordinary water Don't rush around looking for some special solution. Plain water is best. Just hold your hand under the running water and bathe your face and eyes, allowing the water to run freely over

the injured area As soon as the pain begins to subside, cover the eye with a clean eye pad or folded cloth and go at once to the nearest hospital or see your doctor

### *Eyelid Infections*

Infections of the eyelids are usually due to germs finding their way into the skin around the lashes. At times one of the oil glands may become blocked, forming a chalazion, or blind sty

Treatment Apply warm, moist compresses several times a day, treating the infection for at least ten minutes each time. Procure a saturated solution of boric acid from your local medical store for this treatment Plain warm water may be used if boric acid is not readily available. Most infections will disappear within a few days with this simple treatment. If they do not, be sure to see your doctor, for more serious infections are best treated by an eye specialist

### *Acute Conjunctivitis (Pink eye)*

Sometimes the surface of the eyeball and the under side of the eyelids become inflamed from exposure to dust and germs At first the eyes are red, dry, and burning Later there may be pus and watery secretion. During sleep this material dries, making the lashes stick together

Treatment Apply warm, moist compresses several times a day, using the saturated solution of boric acid mentioned above. More severe cases should be treated by a physician, especially if there is any ulceration of the cornea, or front of the eye.

### *Trachoma*

Trachoma is a serious eye condition often found in northern Africa the Middle East, southern Europe, and the Far East. It is highly contagious in its early stages and may be transmitted by direct contact or by handling contaminated articles, such as towels and handkerchiefs. At first this disease, which is caused by a virus, resembles conjunctivitis, described above. However, it is far more stubborn and may return several times after having apparently cleared up Sometimes small ulcers form on the cornea and interfere with the patient's vision Scar tissue may also form under the lids,

turning them inward and causing the lashes to rub against the cornea Trachoma is always more prevalent among those who live in unsanitary surroundings In the past it often caused **blindness,** but today it has largely been brought under control, thanks to modern antibiotic medicines

**Treatment** Trachoma responds well to sulpha drugs One useful medicine is sulphadiazine ophthalmic ointment 5 per cent This should be applied to the inside of the lower lid on the affected eye three times a day Another useful medicine is sulphisoxazole (**Gantrisin**) ophthalmic solution or ointment applied three times a day **Terramycin,** 250 mg capsules or tablets, may be given three times a day during the acute stages Avoid rubbing the eyes with dirty fingers and soiled towels or handkerchiefs Good habits of hygiene and **cleanliness** are essential, but it is equally important to take medicine as prescribed

### *Allergic Conditions (Hay Fever)*

Hay fever and other allergic conditions are frequent causes of eye irritation. Many people are sensitive to dust, moulds, pollens, face powder, dandruff, feathers, drugs, tobacco smoke, and other irritating substances When the eye is affected, it becomes red and inflamed, and there may be intense itching Bright sunlight seems to aggravate the condition, and rubbing the eyes brings no relief

**Treatment** If possible, try to find the offending substance and eliminate it. This may not be easy because several different ones may be causing trouble at the same time Avoid the use of strong soaps and anything else that may irritate the skin, especially around the eyes Simple antihistaminic medicines, such as **Benadryl,** 50 mg three or four times a day, may bring relief If the condition persists, see your family doctor or an eye specialist

### *Surgery of the Eyes*

When the cornea, or clear window, of the eye has been damaged by disease or injury, scar tissue may cover the pupil, causing partial or complete **blindness** By means of a delicate surgical operation it is now possible to remove this scar tissue and to replace it with a graft from the eyes of someone else so that the one who is blind may see.

This operation, known as **corneal transplant,** is being widely used today To do any good, the tissue for the graft must be removed from the donor's eyes immediately after death and then sent to the nearest eye bank, where it is kept in a special solution until it is needed to help some blind person

Unfortunately, not all blind people benefit from this type of operation Blindness arises from many other causes beside scar tissue, and in most cases these involve other parts of the eye Blind people sometimes become excited over reports that someone's sight has been restored by a wonderful operation, and they feel sure the same thing could happen in their case, only to be disappointed to learn that they *have the wrong type of blindness* Before a blind person rushes off to some distant centre, it is best for him to consult a local eye specialist to find out if his condition is one that can be cured or relieved by these newer techniques

### *Cataract*

Few things are more feared among elderly people than the possibility of going blind There are many different reasons for losing the gift of sight, but one of the most frequent causes in *old people* is cataract. Almost every person over eighty years of age will show some tendency toward the development of this disease In cataract, as previously noted, the lens of the eye becomes clouded so that light is prevented from passing through to the retina at the back of the eyeball (Usually both eyes are involved, with one side more advanced than the other ) The clouding begins at the edge of the lens and may not interfere with a person's vision until the disease is fairly well advanced This clouding of the lens may also be seen in most animals if they *live long enough*

When the clouding occurs in the central part of the lens the patient may notice he has better vision in a dim light when his pupils are more widely dilated which allows him to see around the cataract. In bright daylight his vision may improve if he wears an eyeshade or tinted glasses.

Most cataracts develop slowly Gradual loss of vision in middle aged and older people may be the first sign of a developing cataract Elderly people living alone are more likely to have cataracts. Many of them fail to take enough water and other liquids to keep the blood

stream flowing as it should Most of them need extra vitamins Some elderly people are suffering from **diabetes** and should be given insulin or whatever is needed to bring their disease under control Diabetic patients are always more prone to have cataracts

Cataracts in children may be the result of an accident, such as when a sharp object penetrates the eyeball and damages the lens, causing a cataract to form

Cataracts are sometimes seen in premature babies, or they may form later as a hereditary disease of the eye

**Treatment** In the early stages before the cataract has fully developed it is well to change the eye glass prescriptions every year or two This helps to maintain useful vision More advanced cataracts should be removed by surgery This is the only reliable method of treatment and can be done at any age No other operation has brought so much happiness to so many people as the removal of cataracts The operation is simple but highly effective Using local anæsthesia, the surgeon makes a small incision in the eye and removes the cloudy lens Healing usually takes about ten days, and there are very few complications But the operation must be carried out at the right time and under proper conditions.

### *Glaucoma*

Glaucoma is a serious eye condition and a leading cause of blind ness among adults today One out of every eight blind people are victims of glaucoma (pronounced glaw ko ma) Probably all of these people had normal sight during their earlier years, but something went wrong during their forties fifties, or sixties, causing them to go blind

It is believed that one person out of every fifty in middle and later life probably has glaucoma Most of them do not know they have the disease, but they are *gradually going blind*

Glaucoma is very difficult to detect in the early stages It usually comes very slowly and treacherously, but can generally be checked if discovered early enough Often the only indication of trouble will be that a person has bought several pairs of glasses, hoping to relieve **severe headache** and other eye discomforts It is important to realize that a new pair of glasses may not always be the answer to your visual problems

If the pressure within the eyeball rises suddenly, as it sometimes does, the eye may become red and the cornea or window of the eye

will have a steamy appearance. The patient complains of very severe pain in the eye and may feel that the top of his head is blowing off

With chronic glaucoma there is usually no pain, but the patient may note a loss of side vision Objects may be blurred or foggy, and street lights may appear to have a *halo* or *rainbow* around them

As stated earlier in this chapter, the eye is shaped somewhat like a ball It consists of various delicate structures such as the cornea, retina, optic nerve, and the lens The lens is near the cornea, or window, of the eyeball, and divides the eye into two chambers Each of these chambers is filled with a fluid different from that in the other

The various delicate structures of the eye need a steady supply of nourishment, and the waste materials must be carried away promptly This means that there must be a constant circulation of the fluids within the eye at all times

Under normal conditions the fluids within the eyeball have a pressure between ten and twenty mm of mercury, but if, because of injury or for any other reason, these fluids enter the eye more rapidly than they leave, the pressure within the eyeball naturally increases.

When the pressure inside the eye increases, it causes the delicate fibres of the optic nerve and the retina to stretch, forcing them back ward At the same time the blood vessels within the eye are compressed.

Only the nerve cells associated with the edges of vision are affected at first, but unless the pressure is relieved, this process will continue until all connections of the optic nerve are crushed, and the patient suddenly finds that he is blind

**Treatment:** Acute glaucoma is a serious emergency requiring immediate attention. In some cases by giving proper medications your doctor can bring this pressure under control. In other cases, an operation may be required. In one type of operation the doctor trims off a piece of iris, *performing* what is known as an **iridectomy** This relieves the congestion and allows the fluid within the eye to drain away normally This in turn relieves the congestion and pain. The patient's vision in most cases returns to normal Chronic glaucoma is far more common than the acute type. To guard against this have a thorough eye examination at least once every two years to be sure you do not have the disease

Many glaucoma patients do not need surgery The eye specialist may advise the use of special drops in the eyes one of the most common being Pilocarpine. Such medicines must be prescribed by a physician If there is any question, it is best to seek professional advice

without delay Try to avoid emotional upsets as much as possible It is better not to use tea coffee, tobacco, or alcohol Be sure to see your eye doctor regularly, and whenever there seems to be any change in your vision

*A Word About Blindness*

Sad to say, a few people are born blind But most blind people have lost their eyesight through accidents, injuries, or illness Regardless of the reason for blindness, it is important for the individual to accept his disability and learn to live with it This is not easy, especially if the blindness comes on suddenly If it comes more slowly, it is well for the person to recognize what is happening, so that he can prepare himself for the time when his vision may be totally gone

With proper training, a blind person can do many things to help himself, particularly when he is in familiar surroundings Usually he can travel alone and buy the things he needs He can dress himself and tell the time by a special watch with hands that he can feel He should always carry a white cane with which to test the ground and the objects around him as he walks along The white cane is also a sign to motorists that he has the right of way at all times

Children who are blind may need special schooling during the early years, but as soon as possible they should attend regular schools and associate with other children of their own age. As they grow older they should be taught some suitable trade or profession. Most blind people are intelligent and enjoy associating with sighted people They should be treated as normal individuals and should train themselves to be as independent as possible.

Blind people can be helped by friends who are willing to read letters newspapers and books to them While the raido keeps them in touch with the world there are many personal services that they need and appreciate A blind child should not be sent away to some special school He will usually do better in his own neighbourhood school If at all possible, he should be kept in home environment, provided he is given special help with his studies He may not progress quite as rapidly as the sighted child, but he will usually do quite well Treat him just like any other member of the family He should be neither pitied nor rejected for with proper training he can usually take care of himself, if given half a chance

# THE GIFT OF HEARING

The human ear is one of the most important and also one of the most beautifully designed organs of the whole body Everything about its structure, especially the delicate and intricate mechanism by which we hear, points to the human ear as a masterpiece of creation With-out our ability to hear we would all feel very much alone.

We live in a world of sound All through our waking hours and even during sleep our ears are alert They play their part in protecting us from injury and they help to keep us on guard and well informed of what is happening around us

*The Ear Has Three Parts*

The human ear is composed of three distinct parts the outer, the middle, and the inner ear The outer, or visible, is located on the side of the head It consists largely of cartilage or gristle overlaid with skin Its only function is to direct sounds into the short auditory tube or canal which runs deep into the bones on the side of the head. This canal, about an inch long, contains a few hairs to keep out insects and other foreign objects. There are also special glands in this outer canal which provide wax to protect the skin from injury But there are times when excessive amounts of wax form, plugging up the canal and interfering with normal hearing

Tightly stretched across the inner end of this auditory canal is the **eardrum.** This tough little membrane vibrates in response to all the various sounds we hear, from the deepest bass to the highest treble The higher the pitch, the faster the drum vibrates.

Just beyond the eardrum there is another important space largely filled with air, known as the **middle ear** Within this little cavity there is a chain of three tiny bones known as the **auditory ossicles.** Each bone has a distinct shape of its own, and all are joined together for the rapid transmission of sound The 'handle' of the first bone, the malleus, is attached to the inner side of the eardrum the outer end

being attached to the middle bone, or incus. The other end of this second bone is attached to the third little bone, the stapes, or stirrup, the last part of which is inserted into the oval window of the inner ear

These three tiny bones are already formed in each ear at birth All are carefully suspended in just the right position for the transmission of sound How all this comes about is really one of the great mysteries of the human body Could anyone honestly believe that all this just happened ? There are so many places where nature might have made a mistake, yet very few children are actually born deaf

### *How We Hear*

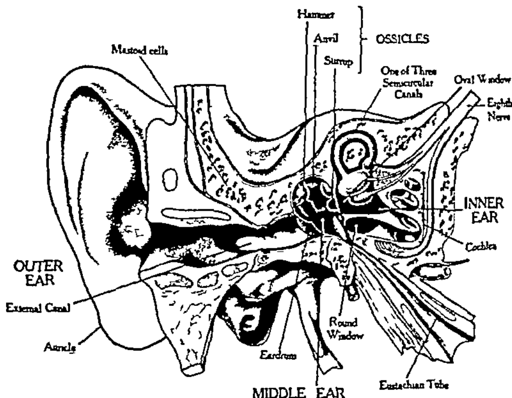
Let us consider the question of how we hear All the sounds reaching our ears are actual waves of energy We can illustrate this by dropping a pebble into a quiet pool Immediately small waves circle out in all directions The same thing happens with sound, except that the waves rush along much more rapidly, the rate at sea level being somewhere around 1100 feet per second

Very loud sounds can actually reach our ears by merely passing through the bones of our heads But for us to hear most sounds clearly, they must enter the ear through the outer canal, and then pass to the eardrum, causing it to vibrate Any movement or vibration of the eardrum is instantly transmitted along the little chain of bones to the inner ear There they are immediately changed into electrical impulses and flashed along the auditory nerves to the brain where they are interpreted as *sound* Do you wonder that scientists never cease to marvel at this miracle of hearing?

### *The Middle Ear*

But let us think of the middle ear for a moment One can readily understand that to pick up normal sounds the eardrum must be free to vibrate at all times This means that the air pressure on one side of the drum must always be the same as on the other side Without this there could be no vibration and we would hear no sounds at all To make sure the air pressure is always the same on each side of the drum each ear has been provided with a tiny air channel, the **Eustachian tube.** This channel provides a direct connection between the middle ear and the back of the nose on each side

Within the middle ear secretions are constantly forming It is




their function to lubricate the tissues within the ear and keep them in good condition But once they have done their work, these excess fluids must be drained away through the Eustachian tube.

This normal drainage may be completely blocked when a person has an infection of the nose or throat. Pressure will then build up within the middle ear causing temporary **deafness** This is what sometimes happens in acute tonsillitis and other infections of the nose and throat This serious condition, known as *otitis media,* is more fully discussed on page 615

Most of the time the Eustachian tubes remain closed They open only for a second or two when we are yawning, but this is long enough to keep the pressure equal on both sides of the drum When any difference in air pressure occurs between the middle and outer ears there is likely to be a feeling of discomfort or perhaps actual pain. Most people become aware of this difference when descending from a high mountain or coming down in a plane.

### *The Inner Ear*

Just beyond the middle ear lies the **cochlea,** or inner ear, one of the most remarkable organs in the human body Of all the scientific

marvels known to man none is more beautifully constructed than this inner ear Within it we have not one but two distinctly different organs associated together One is the organ of balance, or equilibrium, the other the organ of hearing

The **organ of balance** is so closely related to the organ of hearing that what affects one may also affect the other These two organs are connected by an intricate system of tiny canals, specially constructed not only for the reception of sound but for registering differences in pressure whenever the body changes its position in space

The organ of balance consists mainly of three tiny **semicircular canals**, each connected with the other, and all so arranged that they lie at right angles to each other These canals are filled with a special fluid called endolymph At one end of each canal is a small bulb-like enlargement called the ampulla In the ampulla are clustered delicate nerve endings Any movement of the endolymph affects these nerves which transmit their information to the brain through the auditory nerve Thus one knows instantly the position of his body, and whether he is in motion or still Should bodily position changes occur too rapidly, one may become dizzy and faint

Any change of balance between the fluids in the inner ear may result in **Meniere's disease**, a condition in which recurrent attacks of deafness may occur, associated with **dizziness, nausea, vomiting,** and ringing in the ear The patient has a tendency to fall toward the affected side. The trouble may arise either from infection or allergy within the ear

Certain medicines prescribed for Meniere s disease are suggested on page 614 Severe cases may need surgical treatment, but this will be effective only if the organ of equilibrium on the other side of the head is still functioning normally

*Dizziness*

Many elderly people suffer from vertigo, or dizziness The trouble may be due to Meniere s disease, syphilis the toxic effects of certain commonly used drugs, allergic conditions, anæmia, heart problems, and many more. Some women suffer from dizziness during the **menopause.** Elderly people are often so troubled because of **hardening of the arteries.** In a few cases the problem may arise owing to a tumour of the brain

People with dizziness should always avoid the excessive use of salt. Simple preparations such as Dramamine, one tablet or one tea spoon every four hours, may help to control the dizzy spells but may *not cure the underlying condition.* ***Nicotinic acid,*** *100 mg three* times a day before meals, will increase the blood flow to the brain and thus help to relieve the dizziness.

Excessive amounts of wax within the ear canals may sometimes cause dizziness. The wax should be removed, as suggested on page 615. All infections of the middle ear should be cleared up as soon as possible, using the methods outlined on page 615.

*The Mechanics of Hearing*

*Most remarkable of all the delicate structures of the inner ear* is the **cochlea,** a small organ shaped somewhat like a snail. This structure has about two and a half spiral turns and measures less than an inch and a half in length. Within this tiny shell like organ are thousands of delicate nerve endings, all closely connected with the centres of hearing. At these centres the sound waves are changed into electrical impulses and transmitted to the brain. Any sounds entering the outer ear will first cause the eardrum to vibrate. These movements are instantly transmitted along the delicate chain of ossicles, or ear bones, to the *oval window* of the inner ear. Thus any motion of the drum is bound to reach all the delicate structures of the inner ear.

Within the cochlea two different fluids, the endolymph and perilymph, are separated by a special structure called the basilar membrane. Because of the marked difference in electrical potential between these two fluids, all vibrations reaching the inner ear are greatly amplified. These vibrations, in the form of electrical impulses, are picked up by the tiny hair cells of the **organ of Corti,** which lies in a fold of the basilar membrane. From there they are rapidly transmitted to the brain, where we automatically compare them with similar sounds we have heard before. All this takes place so rapidly that we instantly recognize the sound of a car horn or the roar of a passing train and react accordingly.

Our delicate hearing organs are well protected by being located deep within the thick bones of the side of the head, but we should never forget that they can be seriously damaged when exposed to injury.

*Common Causes of Deafness*

1 **Blows** Many young children are partially deaf because of blows they have received on the side of the head These blows can easily damage the delicate hearing mechanism If you must punish a child, **don't box his ears** You may rupture the eardrum and perhaps impair his hearing for the rest of his life

2 **Foreign Objects.** All young children love to experiment. This is how they learn Sometimes they will stuff some foreign object into the ear canal and then forget all about it. After a few days the child may complain of earache and there may be a **foul discharge.**

In attempting to remove the foreign body try to avoid pushing it any farther into the ear If you can see the object, gently remove it with a pair of tweezers If it is stuck tight, take the child to your doctor for proper treatment. Remember, clumsy handling may damage the skin of the ear canal and cause further trouble in the middle ear

3 **Wax in the Ears** Wax normally protects the ear canal from infection and injury, usually it is wise to leave it alone But when too much wax is present, it should be gently removed preferably by irrigating the ear canal To do this, use a small bowl of warm water and a soft rubber bulb **syringe.** Fill the syringe and gently insert the tip into the ear canal Carefully squeeze the syringe, holding another bowl under the ear to catch the excess water Repeat until the wax is removed If this method is not successful see your family physician Do not attempt to dig the wax out yourself You may puncture the drum and produce a middle ear infection which might lead to permanent loss of hearing

4 **Ear Infections** During childhood, ear infections often follow **measles,** chicken pox, mumps or the common cold Chronic **tonsillitis** and other infections may spread to the Eustachian tube and cause pus to gather in the middle ear cavity, a serious condition known as **otitis media.**

**Treatment** The child should be given penicillin or some other suitable antibiotic **Neosynephrine nose drops** or nasal spray should also be used every three or four hours to reduce the swelling and pain in the ear If necessary the eardrum may have to be punctured and the pus drained out. The infection can usually be cleared up with antibiotics

If the middle ear infection becomes chronic the near by mastoid cells may be involved, and these may have to be treated by surgery A **tonsillectomy** operation is advised in all children with badly infected tonsils and adenoids

Sometimes the ear canal becomes badly swollen and infected, particularly after prolonged fresh water swimming This is known as **otitis externa.** Accompanying pain is often severe, and there may be tender lymph nodes behind the ear and in the neck.

For treatment, Burow's aluminium acetate solution, one part diluted with ten parts of warm water, should be applied to the ear canal, either as drops or on cotton swabs, three or four times a day until the swelling goes down After that some bland ointment, such as lanolin, should be used twice daily **Penicillin** 600 000 units, or some other suitable antibiotic should be given daily by injection during the acute stage Another good medication is Furacin (nitrofurazone) ear solution, five drops in the ear canal three times a day

5 **Otosclerosis** Otosclerosis is a chronic, gradually increasing form of conduction deafness that often begins in early adolescence. Its true cause is not known In this condition the little stapes bone extending from the middle ear becomes fixed and can no longer move freely within the oval window of the inner ear Spongy bone grows around the opening, preventing all motion and causing a gradual loss of hearing Often the first sign of trouble is **ringing in the ears.**

Several excellent operations have been devised to correct this condition, the most popular at present being the **stapes mobilization** In this operation the surgeon gently lift the eardrum forward, exposing the middle ear He then relieves the pressure on the stapes, so that the little bones can move freely once more After this operation most patients can go back to their normal work in a few days In more advanced cases the stapes may be replaced by a stainless steel wire or a plastic bristle may be used in place of the little bone.

Another useful method of treatment is the **fenestration** operation In this the surgeon makes a new oval window, covering it with a tiny skin graft from the ear canal Thousands of patients have had their hearing restored by these intricate operations on the ear Others have greatly benefited by using a good hearing aid

6 **Nerve Deafness.** So far the hearing problems we have discussed arise from conduction defects. Nerve deafness is different.

Here the trouble may not affect the middle ear, but may arise from some process involving either the inner ear, the auditory nerve, or perhaps the hearing centre of the brain. Most of these conditions come on later in life, but occasionally a child is born with partial or complete nerve deafness. Such children should always be given special training in **lip reading** and **speech therapy**.

Older people with nerve deafness often complain of **ringing in the ears.** This may be more or less continuous. For this condition doctors usually prescribe large quantities of **vitamin** A, $B_1$, and **niacin**.

Nerve deafness in older people sometimes arises from hardening of the arteries, especially those leading to the ears. As the condition progresses, the patient may not be able to distinguish between such common sounds as the ringing of the doorbell, the ticking of a watch, or the sound of a telephone. Nerve deafness may also arise from influenza, measles, and other virus infections. Sometimes the use of *drugs, tobacco, and alcohol will cause a degeneration of the nerve* endings within the cochlea, or hearing organ, itself. When the semicircular canals are also involved, the patient may complain of dizziness. Merely discontinuing the use of tobacco, alcohol, or drugs will often bring relief.

Another cause of congenital deafness in children arises from **syphilis,** especially if the mother happened to have had this disease during pregnancy. Whenever this is suspected, the child should be given large quantities of penicillin, 400 000 units daily by injection for two or three weeks. Some doctors also favour the use of a treatment called fever therapy.

Other causes of nerve deafness arise from **skull fractures** following falls and traffic accidents, especially if these involve the auditory, or hearing, nerve, or the blood vessels leading to the inner ear. Unfortunately, little can be done when these nerves or blood vessels are damaged or destroyed. A heavy **explosion** may injure the eardrum and perhaps the cochlea as well. For this reason, boilermakers and men who have to work in noisy areas should always wear ear plugs or muffs to protect their ears, for constant noise will eventually damage or destroy the nerves of hearing.

### *Choosing a Hearing Aid*

Many people who can still hear loud sounds may not be aware that they suffer from a partial loss of hearing. Such people may seem

dull or stupid, but there may be nothing wrong with their minds their trouble is faulty hearing Their deafness could be due to wax in the ear canals If present, this should be gently removed, as suggested on page 615 If no wax is present, the trouble might be due to either nerve deafness or conduction deafness, which may be helped by a hearing aid

There are many different types of hearing aids Before buying one, it is always well to consult an ear specialist Some people may do well with a hearing aid worn behind the ear and designed for bone conduction Others will hear better with an instrument that makes use of air conduction Some small transistor hearing aids may even be built into the frame of a person s glasses. These have a small ear piece that fits into the ear canal on the deaf side

Some people who are hard-of hearing may benefit from a stapes mobilization operation, as outlined on page 616 Others may have some form of nerve deafness that may not respond to even the best hearing devices now available

All hard of hearing patients should be trained in the art of lip reading It is surprising how successfully some who are totally deaf can communicate with those around them by carefully observing their lips as they speak. Relatives and friends should always make sure to enunciate plainly in speaking to those with impaired hearing

Never forget that those who are hard-of hearing are often depressed over their disability They may feel very much alone Certainly they need understanding but not sympathy If a hearing aid will help by all means buy one. If the patient needs an operation, take him to some medical centre where it can be done Do all you can to help the patient adjust to his disability Let him know that in spite of his handicap he can still fill a useful place in the world This will help him to live out his days with satisfaction and peace of mind

CHAPTER 53

# HELPING OLDER PEOPLE

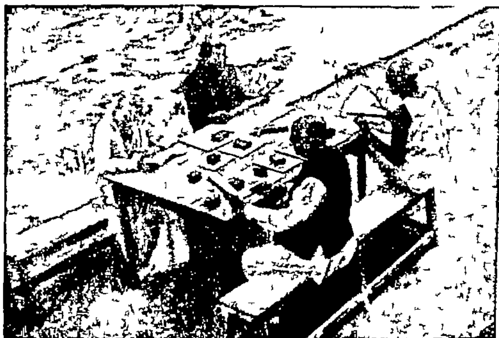
Nothing is more certain than the passage of time and the changes that come with it. Whether we like it or not, we are all growing older every day Naturally we all wish we could stay young and full of energy, but this we cannot do We must therefore find ways to adjust our minds even as nature seeks to adjust our bodies to the changes of time

What makes a person grow old? This has been the great question in the minds of medical students for a long time Today we know some of the reasons why these changes occur With delicate instruments we can even measure some of the more obvious changes But we still do not have the complete answer Before drawing too many conclusions we must await the further findings of modern medical science.

We are all aware of the enormous changes occurring at puberty, between childhood and adolescence As explained in chapters 26 and 47, these are largely due to the increased activity of the endocrine glands We are also well aware of the changes occurring in the menopause, or change of life These are probably due to the lowering of certain hormones in the blood stream, as discussed on pages 536 and 583 This gradual lowering of sex hormones may alter the level of other vital hormones and enzymes, and thus prepare the way for the marked changes of later life

Is there any way of turning back the clock of time and preventing these changes from coming on? Unfortunately not But we can do much to delay this process by making it a lifelong habit to choose the right diet. We must also learn to live sensibly, taking sufficient rest and exercise, and avoiding those things that break down the body's resistance to disease. These principles have been the theme and purpose of this book

There is nothing new about the desire to stay young Years ago people wore special charms or went on pilgrimages to various shrines to keep themselves from growing old But the story was always the



Older people and young people need to spend much time out of doors to retain good health.

same. Eventually they died, usually at the same age as their parents did. Hereditary influences are very strong in determining the length of a person's life.

Today many people are looking for some magic pill or tonic, or a series of injections, or even an operation that might help to prolong their years. So they run from one doctor to another, hoping to find something that will keep them young and vigorous a few more years. This often serves a useful purpose, for many older people are found to be suffering from mild cases of heart disease, high blood pressure, diabetes, and other conditions, all of which can be successfully treated when discovered in time.

But regardless of all we may do, the passing of time always brings subtle changes that cannot be ignored. Take a good look in the mirror and you will probably see some of these changes taking place in yourself right now. But this is no reason for discouragement. Those extra lines often add a richness and character to the features never seen in our younger years.

Fortunately, there is no sharp dividing line between one period of life and another. The years of maturity steal upon us unawares,

and most of us are scarcely conscious of the passing time But sooner or later we must all face up to the profound changes that lie ahead And before doing this for ourselves, we may have to help some of our loved ones during the closing years of their lives Not that we should try to prolong their lives, for often they are suffering and would rather be at rest. But it is our responsibility to make their remaining days truly happy and satisfying

*Be Optimistic!*

So much depends on the attitude of the mind Many years ago the wise King Solomon noted that "a merry heart doeth good like a medicine" Those words are just as true today A cheerful, optimistic outlook is of the greatest importance in helping to face the infirmities of age How refreshing it is to find some elderly person still managing to live well in spite of some real infirmity How sad to find another with some minor illness just about to give up and die because of depression and discouragement.

Successful living usually depends on choosing a suitable diet, keeping vigorous and *active* securing *sufficient sleep,* and maintaining



**Fortunate are the old people who have keen interests and active minds. There are few things to compare with a good stimulating book to keep them that way**

a *wholesome attitude* toward life in general Younger people should always encourage those older in years to "*think young*" Help them to look on the bright side of life in spite of pain and disability An optimistic attitude is the first and perhaps the most important step toward better health

*Watch Out for Danger Signals!*

Many serious conditions may be first noted during the later years of life All of these are more fully discussed elsewhere in this book Here they are only briefly mentioned so that nothing will be overlooked in considering the problems of an elderly patient.

**Hardening of the Arteries** Although this condition is common in later life, it is *not* a normal part of growing old. Years of neglect, plus a poor diet and bad habits of living, often precede the onset of **arteriosclerosis,** or hardening of the arteries Many who suffer from this condition are or have been grossly **overweight** so that fatty deposits are found in the walls of many important arteries This condition is the chief cause of strokes and heart attacks, is often inherited and is far easier to *prevent* than to cure

All younger members of the family should realize that hardening of the arteries often begins early in life. They should become aware of the danger and do their best to follow a balanced programme of living right from their earliest years. For further suggestions concerning arteriosclerosis see page 263

**High Blood Pressure,** or hypertension, usually comes on during the middle and later years of life and is often associated with strokes and heart disease Its most serious complications can often be avoided by *following a lifelong habit of sensible living* Suggestions for treatment are found on page 247

**Strokes** are very common during the later years of life **Small strokes** usually cause very few symptoms. But if they occur too often they may lead to marked changes in the patient's ability to think normally A large stroke may leave a person more or less **paralysed** for the rest of his days

Most strokes arise from a **thrombosis** or clotting of blood in one of the vessels leading to the brain If this occurs in one of the larger vessels of the neck, the clot can be removed by surgery, and the patient may then make a complete recovery Unfortunately, we still

have no way of removing clots from the smaller vessels within the brain itself.

Sometimes a small artery in the head will *rupture* possibly because of high blood pressure. This may then cause a serious **hæmorrhage** inside the head. The trouble may arise from a weakness, or **aneurysm,** in the wall of the vessel. The resulting hæmorrhage may then badly damage the brain. For more complete details concerning the treatment of strokes, see page 504.

**Heart Trouble** is the greatest cause of death today. The first sign of trouble may be nothing more than a steady rise in the blood pressure, followed by heart failure. Doctors call this **hypertensive heart disease**. If there is a marked narrowing of the vessels in the heart wall, the condition is known as **coronary artery disease.** The patient may then begin to suffer from **angina pectoris,** or sharp pains over the heart. Later he may actually develop a true heart attack, or **coronary thrombosis**.

However, pains in the chest are not always due to heart trouble. Other conditions such as arthritis of the spine, costochondritis, or inflammation of the anterior chest wall, radiculitis, or nerve inflammation, pleurisy, pneumonia, and many other conditions may also cause pains in the chest. These are all different from true heart disease and are discussed elsewhere in this book. For more details concerning heart trouble, see Chapter 30.

**Leg Ulcers and Varicose Veins** are also common in older people. Wherever possible, it is wise to have the large, twisting veins completely removed by surgery. This is always the most satisfactory treatment. Smaller ulcers of the legs may then heal without further surgery. Larger ulcers may need to be covered with a skin graft to promote healing.

**Arthritis** is often seen during the later years of life. Swelling and pain may occur in the fingers, wrists, shoulders, spine, hips, knees, ankles, and toes. Any weight-bearing joint may be involved.

Much can be done to help arthritic patients. **Hot moist packs** will often relieve the stiffness and pain and help to make life easier for the patient. For a more complete discussion of arthritis, see pages 456–459.

**Glandular Troubles.** Many older people are troubled with *itching, dizziness, hot flashes* and other distressing symptoms. Most of

these arise from endocrine changes in the body **Hormones** are often the answer to these troublesome conditions. Older ladies may benefit from the use of female hormones, while older men may need male hormones to keep them well A combination of both male and female hormones may help to prevent some serious ageing problems, such as **osteoporosis,** or thinning of the bones For a more complete discussion, see the chapters on hormone conditions

**Urinary problems** are always more common in later life. Because of weakness in the sphincter muscles of the bladder some elderly women may have difficulty in holding their urine. Gently dilating the urethra with a suitable instrument will often relieve this condition. Sometimes more extensive procedures are needed Elderly men may have difficulty in passing their urine because of an enlarged **prostate gland** The gland should then be removed by surgery, preferably by using the transurethral approach Urinary infections are more fully discussed in Chapter 49

**Diabetes** may come on in later life, and is usually rather mild, so that it may not be recognized until a person has a routine medical examination Fortunately this form of diabetes is easier to control than the juvenile type that occurs in younger people. Most elderly people respond well to the newer antidiabetic pills, as suggested on page 552

**Digestive Disorders** Many older folk suffer from gas and distension of the stomach and intestines. This is often aggravated by **nervous tension,** probably because in that condition the patient is swallowing large quantities of air without realizing what he is doing He may also have achlorhydria which is a lack of hydrochloric acid in the stomach Many older people fail to drink enough water to keep the contents of the large bowel from becoming hard **Constipation** naturally results. Merely increasing the intake of water, and using bulky foods such as vegetables in the diet, will often relieve the problem completely However, all patients with digestive trouble should have X rays of the stomach, gall bladder, and intestines to rule out more serious problems. Older people should be careful not to use high **enemas** and harsh laxatives too frequently, for these may cause trouble in the colon. They should also have a careful examination of the rectum at least once each year

**Cancer** may strike at any time of life, but it is always more common during the later years. Any chronic sore appearing on the

face, head, or neck could be due to skin cancer, and should be removed by surgery Cancer may also occur in the stomach, rectum, breast, and genital areas Cancer of the lung or bladder is always a possibility, especially in **heavy smokers.** All these conditions are discussed in other parts of this book They are only listed here for easy reference when considering the health of an older person

### *Choosing a Good Doctor*

Every family needs the counsel and guidance of a good family physician on whom they can depend at all times Do not wait until someone is very ill before finding a good doctor for your family The more he knows about you now, the better he will be able to serve you in time of need Many serious illnesses can be prevented or relieved when recognized and treated in time

The doctor you choose should be well trained and well accepted by the other physicians in your community He should be a man of character and discretion His advice will mean much to you, and his presence will bring comfort and strength in times of severe illness Why not get to know him *now* rather than waiting until too late for him to give you the help you need?

### *Selecting a Nursing Home*

When an elderly patient is no longer able to care for himself the younger members of the family have some real decisions to make Every true son or daughter naturally wants to do what is best for their ageing parents and loved ones but how can they know for sure what to do?

Wherever possible, older people should be allowed to remain in their own homes as long as feasible Some may need the services of a housekeeper or companion, or some help in getting their meals. Be careful not to restrict their activities too much Keep the older person vigorous and active, and this may help to avoid some of the more serious complications that so often arise from inactivity

Eventually the time may come when a nursing home will have to be considered What kind of a place should you choose? That naturally depends on the type of patient. Those who are up and about can usually get along with less expensive care. Bedridden patients may need the services of a trained nurse to supervise their treatment. Others may do well with the help of an attendant

Whether the patient is in a convalescent hospital or cared for at home, there are certain things that must always be watched If he is bedridden great care must be taken to **prevent bedsores.** These usually arise because of prolonged pressure on the bony prominences of the back, and also on the heels and sides of the ankles

Bedsores are often slow in healing and are a constant source of infection Paint the ulcerated area with compound **tincture of benzoin** and apply an **infrared heat lamp** for about twenty minutes two or three times a day, as suggested on page 103 This will often help to heal bedsores provided the patient still has an adequate circulation of the blood After the infrared treatment apply **neomycin** powder and cover the ulcer with a clean dry dressing Some infections respond well to the use of an **ultraviolet lamp,** but one must take care *not to burn the skin*

The elderly patient's **diet** is also important His meals should be well prepared and attractively served If he cannot chew his food properly see that it is cut up or puréed so that he can get all the nourishment from his meals

### *Suggestions for Comfort*

Before finally choosing a nursing home it is always wise to talk the matter over with your family doctor He may have several places to suggest You should also take a good look at the condition of the room and the furnishings to be sure the patient will be comfortable and happy in his new surroundings. Try to provide a pleasant view of lawns flowers and trees If he can walk or ride in a wheel chair see that he is taken out in the sunshine frequently where he can enjoy the beauties of nature and forget his problems for a while

If no suitable rest homes are available there may be no other choice than to have the patient reside with different members of the family, perhaps spending part of the year with each one so that *all will share in the responsibility* This may be less expensive, but there are drawbacks For in drifting around from one place to another some elderly people may begin to feel they have no home of their own

Elderly people should always be allowed to live their own lives as much as possible. Encourage them to be independent, doing all they can to help themselves *Do not be too annoyed if they sometimes seem childish* and refuse to follow your instructions. Just give

them a little time to think things through By being tactful and kind you may persuade them later

Elderly patients who are mentally ill should always have the help of a qualified psychiatrist. If agitated or depressed, they can often be helped by the use of suitable tranquillizers. But these must be prescribed in the right dosage to meet the individual patient s needs

Caring for an elderly patient is not always easy Often there are real problems to face But whenever possible, it is wiser not to make an issue of these Above all, try to make the patient feel that even at the end of his life he is still loved and wanted by those for whom he has done so much in past years 'Honour thy father and thy mother' was part of the divine law given to the human family long, long ago It is just as real and just as imperative today as it was then, for with this commandment goes that same wonderful promise— that thy days may be long upon the land which the Lord thy God giveth thee

Here is one of the most beautiful secrets of life A true appreciation and love for our own dear ones and for all the human family will bring lasting joy and happiness, and will bring to all of us the deepest and most enduring satisfactions in life

"Give me a good digestion, Lord,
And also something to digest!
Give me a healthy body, Lord,
With sense to keep it at its best

Give me a healthy mind good Lord,
To keep the good and pure in sight,
Which seeing sin is not appalled
*But finds some way to set it right*

'Give me a mind that is not bored,
That does not whimper whine, or sigh
Don t let me worry overmuch
About this fussy thing called I

Give me a sense of humour Lord
Give me the grace to see a joke,
To get some happiness from life,
And to pass it on to other folk "

* Written over 600 years ago

# APPENDIX

## TREATMENTS

## COUGH SYRUP

*Expectorant*

| | |
|---|---|
| Ammonium Chloride | 10 grams |
| Ipec Syrup USP | 30 cc. |
| Syrup of orange qs AD | 120 cc |

Take 1 or 2 drams every four hours as necessary

*Sedative*

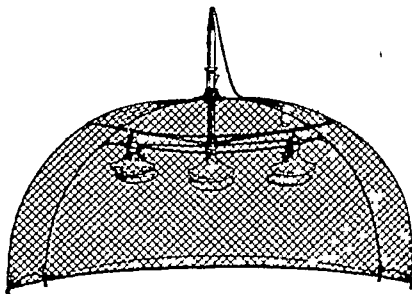
| | |
|---|---|
| Codein phosphate | 0.5 gram |
| Syrup of orange qs AD | 120 cc |

Use for any troublesome cough Take 1 or 2 drams every 4 hours as indicated

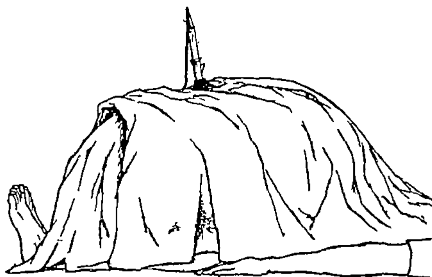
*Soothing*

Equal part of lime juice mixed with jaggery or honey

## HEATING CRADLE



One type of simple home-made heating cradle may be made by using a baby's mosquito net, as shown Infra ray lamps may be purchased at a good electrical shop Arrange the bulbs on the ribs of the net as shown, keeping them high so that the patient will not be burned, then plug into the electrical outlet Be sure wiring is safe Place the cradle over the area of the body needing treatment and cover with a sheet as shown below Treatment may be for fifteen or twenty minutes



## HOT COMPRESS

Heat water Fold a face cloth or piece of flannel of about the same size. Immerse in the water Wring out excess water and place hot cloth on area to be treated Usually it should be as hot as can be tolerated When the cloth has cooled, repeat the procedure. Do this several times.

## IMPETIGO

Ointment containing neomycin, bacitracin, white precipitate, sulphadiazine, or ammoniated mercury ointment.

## KIDNEY INFECTION

Tetracyclin hydrochloride 250 mg each capsule. One capsule every eight hours round the clock. Another antibiotic useful in kidney infection is sulphamethiozle tablets three times a day. Additionally, liquid citralka, or syrup sio-citrate or cital.

## SITZ BATH

Sitz baths are very useful in treating any condition involving the rectum or pelvis. By this simple treatment muscle cramps and pelvic pain can often be relieved without having to use powerful drugs. Sitz baths are also useful in relieving urinary retention and *spasms of the rectum*.

The patient sits on a folded towel in a tub of warm water for a period of fifteen to thirty minutes several times a day. The water should be at least six inches deep and the temperature somewhere around 110 to 120 degrees Fahrenheit. Some doctors like to give **alternating** sitz baths, using both hot and cold water, thus increasing the effectiveness of the treatment.

Sitz baths are very beneficial following operations on the rectum for hæmorrhoids, fissures, fistulas, and similar conditions. After such an operation the patient may be instructed to take several sitz baths *every day and also during the night if necessary*. These treatments are a real aid in healing the tissues. If the weather is cool, a blanket should be draped around the shoulders to prevent chilling. After the treatment the patient should return to bed for a time.

# DIETS

## BLAND DIET (Non irritating)

milk
buttermilk
plain curd
eggs, boiled, poached or scrambled (without fat)
legumes, strained
well cooked and strained cereals (*soojee* sago, rice, oatmeal)
boiled vegetables
soft bread or *chapatis* (1 slice of bread or small *chapati* each meal)

very ripe mashed bananas
strained grape or orange juice
steamed fish or lean white meat
desserts custard, gelatin desserts, puddings of rice, corn flour, sago, *soojee*
Avoid tea, coffee, fats and onions

## LIQUID DIET

milk
buttermilk
plain curd
strained fruit juice
watermelon (no skin or pips)
clear broths
Marmite drink
strained soups
clear jellies
Avoid tea and coffee as they are irritating

## LOW FAT DIET

milk with cream removed
curd from cream free milk
bread or *chapattis* baked without oil
cereal (rice *soojee* oatmeal)
fruit, citrus and others
plenty of raw salads
vegetables, green or yellow
potatoes
legumes
steamed fish
jaggery
oil, butter or margarine (small quantity used in cooking where neccesary)

*Avoid*

any animal fats
avocado
cheese
chocolate
coconut oil
condensed milk
fried foods
ice cream
nuts

## LOW RESIDUE DIET

eggs (lightly cooked)
butter or *ghee*
milk and cream
curd
*dhal*
*chapattis* and bread made with *maida* or finely sieved *atta*
well cooked refined cereals (rice, *soojee* sago)
mashed potatoes

plain, refined biscuits
honey, jaggery
strained fruit juices
sieved fruits and vegetables
tender white meat
steamed fish (no bones)
Avoid fried foods, spices, strong tea or coffee, alcohol or mineral water

## NON RESIDUE DIET

clear soups
strained fruit juices
thin rice conjee
eggs

Depending on how non residue the diet must be, milk and milk products may be allowed

## SALT FREE DIET

Do not use salt on anything or in cooking This includes monosodium glutemate.

Do not use salted butter or *ghee* (melted butter)

Do not use highly seasoned or spiced foods.

Avoid meat or salty fish tinned vegetables Marmite, dill pickles rich cakes or biscuits

## SOURCES OF CARBOHYDRATES

### *Pure Carbohydrate*

sugar
jaggery
honey
sago

### *Cereals*

*bajra*
*cholam*
oatmeal
*ragi*
rice
wheat, whole
*maida*

### *Pulses*

Bengal gram *dhal*
black gram *dhal*
field bean
green gram *(moong)*
*masur dhal*

*Roots and Tubers*

potato
sweet potato
tapioca, fresh

*Fruits*

dates, dried
raisins, dried
figs, dried
fresh fruits

## SOURCES OF PROTEIN

*Cereals*

*bajra*
*cholam*
oatmeal
*ragi*
rice
wheat, whole
*maida*

*Pulses*

Bengal gram
black gram *dhal*
field bean, dry
green gram *(moong)*
*masur dhal*
peas, dried

*Milk and Milk Products*

milk fresh or powdered
buttermilk
curd

*Nuts*

cashew nut
coconut, fresh
groundnut (peanut)
walnut

*Flesh Foods*

eggs
fish
mutton
liver

Height and Weight Chart for Men

Weight in Pounds

205 200 195 190 185 180 175 170 165 160 155 150 145 140 135 130 125 120 115

Pounds

205 200 195 190 185 180 175 170 165 160

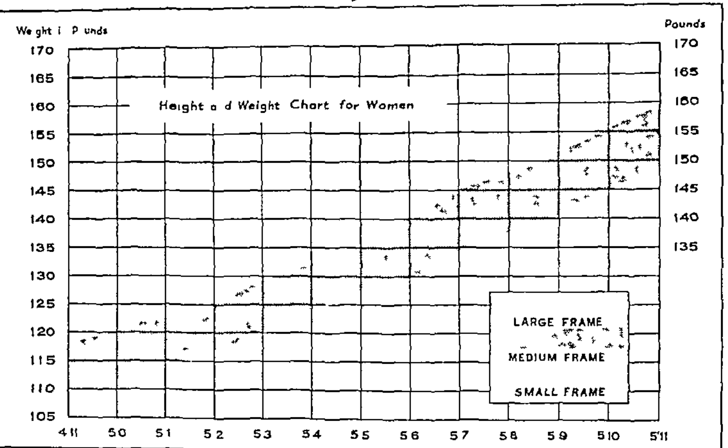
5'2 5 3 5 4 5 5 5 6" 5'7" 5 8 5 9 5 10 5 11 6 0 6 1 6 2 6 3

LARGE FRAME

MEDIUM FRAME

SMALL FRAME

Compare your weight with these normal standards based on scientific research.
Allow for larger or smaller frames according to size.




Your ideal weight will depend upon whether you have *large* or *small bones and* muscles. Women weigh more during pregnancy There may be some variation during the menstrual cycle

# DEFINITIONS OF MEDICAL TERMS

| | |
|---|---|
| Abortion | Interruption of pregnancy |
| Abscess | Collection of pus in the body tissues |
| Acne | Skin disorder involving the sebaceous glands, a pimple or small boil |
| Acromegaly | Abnormal enlargement of bones of head, hands, feet, and face due to changes in the endocrine glands. |
| Addiction | Enslavement to some habit, such as taking drugs |
| Adhesion | Abnormal attachment of tissues |
| Adolescence | The period of growth from twelve to twenty-one years of age. |
| Adrenalin | A powerful hormone produced by the adrenal glands. |
| Albumin | A protein substance found in most animal and plant tissues. |
| Allergy | Sensitivity of an individual to a specific substance, such as house dust |
| Alopecia | Patchy baldness. |
| Amino acids | Chemical compounds out of which proteins are formed |
| Amœba | A microscopic animal consisting of one single cell |
| Amniotic sac | Fœtal membrane surrounding the unborn infant |
| Anæmia | Deficiency of red blood cells. |
| Aneurysm | Bulging or rupture of blood vessel wall |
| Ankylosis | Stiffness of a joint |
| Anorexia | Loss of appetite. |
| Antibiotic | A chemical substance having the power to retard the growth of certain germs. |
| Antidote | Medicine for counteracting the effects of poison or disease. |
| Antitoxin | Substance formed in the blood stream capable of combating certain poisons within the body |

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| **Aorta** | The large artery that carries blood from the heart to the rest of the body |
| **Apoplexy** | Brain hæmorrhage or stroke. |
| **Arteriosclerosis** | Hardening of the arteries |
| **Asepsis** | Freedom from germs and infection |
| **Atrium** | Auricle or upper chamber of the heart. |
| **Auricle** | See Atrium |
| **Barbiturate** | A sedative drug |
| **Barium** | An opaque chemical compound used in taking X ray pictures It helps to visualize internal organs |
| **Benign** | Tumour or condition which is not malignant or cancerous |
| **Botulism** | A severe form of food poisoning |
| **Bronchoscope** | An instrument used to examine the bronchial tubes and to remove foreign objects lodged therein |
| **Bunion** | A swelling of the main joint of the great toe. |
| **Bursa** | A saclike cavity filled with fluid |
| **Calorie** | Unit of heat used to measure the energy value of food |
| **Capillary** | A tiny blood vessel, finer than a human hair, connecting a vein and artery |
| **Carbohydrates** | Energy foods, such as starches and sugars |
| **Carcinoma** | Malignant or cancerous tumour of the skin or internal organs. |
| **Cardiac** | Pertaining to the heart. |
| **Caries** | Dental decay |
| **Catheter** | A thin rubber or plastic tube. |
| **Cholecystectomy** | Removal of gall bladder |
| **Cholesterol** | A chemical substance found in fats and oils also in bile and gall stones Eessential to every cell in the body |
| **Cirrhosis** | Inflammation of the liver usually due to alcoholism. |
| **Coarctation** | Narrowing or constriction of the aorta. |
| **Coma** | An unconscious state from which the patient cannot be aroused |
| **Concussion** | Jarring by a blow or traffic accident. |

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| **Congenital** | A condition existing from one's birth |
| **Conjunctivitis** | Inflammation of the membrane covering the eye. |
| **Curettage** | Scraping process to remove the contents of a body cavity |
| **Cyanosis** | Bluish discoloration of the skin caused by a diminished supply of oxygen in the blood |
| **Dehydration** | Abnormal loss of body fluids |
| **Delirium** | State of mental confusion and excitement. |
| **Dermatitis** | Inflammation of the skin |
| **Diarrhœa** | Loose, watery stools |
| **Diastolic** | Lower level of the blood pressure within the arteries at the moment when the heart is at rest. |
| **Diuretic** | A medicine that releases large quantities of urine |
| **Diverticulosis** | Abnormal pockets or pouches within the mucus membrane of the colon and other organs. |
| **Duct** | Tube or channel. |
| **Dysentery** | Inflammation and ulceration of the lower part of the intestines, resulting in bloody or mucus-filled stools. |
| **Dysmenorrhœa** | Painful or difficult menstruation |
| **Dystrophy** | Progressive weakness of a muscle. |
| **Eczema** | A skin disease with itching and redness. |
| **Electrocardiograph** | Diagnostic instrument used to record the electrical currents generated in the heart. |
| **Electroencephalograph** | Machine for recording brain waves. |
| **Embolism** | Obstruction of a blood vessel by a blood clot or foreign substance from some other area |
| **Embryo** | Earliest stage of human life before birth |
| **Emphysema** | Abnormal presence of gas or air in body tissues. Widening of the air sacs in the lungs. |
| **Endemic** | A disease which is present more or less continuously in a community |
| **Endocarditis** | Inflammation of the inside lining and valves of the heart. |
| **Enzyme** | Complex organic substances secreted by living cells, important in digestion and other bodily functions. |

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| **Epithelioma** | A malignant tumour originating in the skin or mucous membrane |
| **Estrogen** | Female sex hormone produced in the ovaries. |
| **Fibrillation** | Rapid twitching of the walls of the heart |
| **Flatulence** | Air or gas in the stomach or intestines |
| **Fœtus** | Unborn child after third month of conception |
| **Fomentation** | A hot, moist pack or application to the body |
| **Fracture** | Broken bone |
| **Gamma globulin** | A protein produced in the blood with special properties for combating disease |
| **Gangrene** | Death of part of the body tissue due to loss of normal blood supply to the affected area |
| **Gastric** | Pertaining to the stomach |
| **Gene** | One of the biological units of heredity contained in the chromosome |
| **Geriatrics** | A branch of medicine dealing particularly with the health and welfare of the aged |
| **Halitosis** | Offensive breath |
| **Hallucination** | A mental impression having no foundation in fact |
| **Harelip** | A cleft upper lip |
| **Heartburn** | Burning sensation in upper abdomen and chest |
| **Hæmoglobin** | Oxygen carrying pigment found in red blood cells |
| **Hæmophilia** | A hereditary disease characterized by abnomal bleeding and a failure of the blood to clot. |
| **Hæmoptysis** | Spitting of blood |
| **Hepatitis** | Inflammation of the liver |
| **Hernia** | Rupture or protrusion of an organ or part of an organ through the wall of a body cavity |
| **Hormone** | A glandular secretion that regulates body functions |
| **Hypertension** | Elevation of the blood pressure |
| **Hypochondriac** | One who is constantly over anxious about his health |
| **Incontinence** | Inability to control natural drainage from the body |
| **Infarction** | Death of a localized area of the heart due to |

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| | sudden stoppage of the blood supply to the involved area |
| **Inoculation** | Introduction of a virus into the system to produce a mild form of the disease and thus secure immunity |
| **Insulin** | Hormone secreted by the pancreas important in controlling the level of sugar in the blood |
| **Jaundice** | Yellow skin due to the presence of bile |
| **Laceration** | A wound or tear of the skin or deeper tissues |
| **Lactation** | The period during which milk is produced |
| **Leucorrhœa** | A whitish discharge from the female genital organs |
| **Leukæmia** | A blood disease in which the white blood cells increase enormously in number This condition is known as cancer of the blood |
| **Leukocytes** | White blood cells |
| **Ligament** | A tough band connecting bones or other tissues of the body |
| **Lymph node** | Small gland where certain white blood cells are produced |
| **Malignant** | A condition leading to death as from cancer |
| **Mastitis** | Inflammation of the breast. |
| **Menopause** | Change of life. |
| **Menstruation** | Periodic discharge of blood from the vagina |
| **Metabolism** | The process of chemical and physical change taking place within the cells of the body during the building up and breaking down of the tissues |
| **Metastasis** | Spread of cancer cells from one part of the body to another |
| **Microbe** | A germ |
| **Miscarriage** | Interruption of pregnancy spontaneous abortion |
| **Mucosa** | Mucous membrane |
| **Mucus** | Lubricating fluid secreted by the mucous membranes of the body |
| **Myocardium** | Heart muscle. |
| **Myxedema** | Condition due to thyroid deficiency |
| **Nephritis** | Inflammation of the kidney |
| **Neuralgia** | Pain in a nerve |

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|---|---|
| **Neurasthenia** | A neurosis characterized by abnormal fatigue |
| **Neuritis** | Inflammation of the nerves |
| **Neurosis** | Emotional disorder caused by some inner conflict |
| **Node** | A knot or swelling |
| **Obesity** | Overweight caused by accumulation of excess fat in the body |
| **Occlusion** | Blocking or closing |
| **Œdema** | An abnormal amount of fluid in the body tissues, such as in the legs and ankles |
| **Osteoporosis** | Thinning of the bones |
| **Otosclerosis** | Progressive type of deafness |
| **Ovulation** | Release of the ripened egg from the ovary occurring each month midway between the menstrual periods |
| **Ovum** | Egg |
| **Oxygen** | Chemical element necessary to life |
| **Pacemaker** | A section of the heart wall that controls the rate and rhythm of the heart beat |
| **Palpate** | To examine by touch |
| **Palpitation** | Rapid throbbing pulsation of the heart. |
| **Pancreas** | Main digestive organ of the body |
| **Pathological** | Concerned with disease |
| **Pellagra** | A deficiency disease characterized by sores around the mouth |
| **Pericardium** | Fibrous bag surrounding heart |
| **Peristalsis** | Wavelike muscular contractions of the walls of the stomach and intestines |
| **Phlebitis** | Inflammation of the veins |
| **Placenta** | An organ developed in the uterus through which the unborn child obtains its nourishment |
| **Plasma** | Liquid part of the blood |
| **Plastic surgery** | Restoring normal appearance of skin following an injury or congenital abnormality |
| **Platelets** | Tiny fragments of cells essential to the clotting of blood |
| **Pleura** | Tissue covering the lung |
| **Pneumonia** | Acute inflammation of the lung |
| **Podiatrist** | Specialist in care of feet |
| **Polycythæmia** | An excess of red blood cells |

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|---|---|
| **Polyp** | A small soft tumour attached by a slender stalk to the surface of the mucus membrane |
| **Prostate** | A sex gland surrounding the neck of the bladder in the male |
| **Prothrombin** | One of the blood clotting factors in the blood |
| **Pruritus** | Intense itching |
| **Psychosis** | A serious mental disorder |
| **Psychosomatic** | A disorder of the body produced by a condition of the mind |
| **Psychotherapy** | Treatment of mental and emotional disorders |
| **Puberty** | The time of life when a boy or girl begins to become sexually mature |
| **Rehabilitation** | The process of restoring the disabled to as normal a life as possible. |
| **Respiration** | The act of breathing |
| **Rhinitis** | Inflammation of the mucous membranes of the nose as seen in colds and hay fever |
| **Schizophrenia** | Dementia precox, a mental illness known as "split personality" |
| **Sclerosis** | Hardening of the tissues |
| **Sebaceous** | Pertaining to the oily or fatty matter secreted by the skin glands |
| **Seizure** | A sudden attack of pain or disease condition |
| **Senility** | The mental and physical weakness of old age |
| **Sloughing** | The separation of dead from living tissues caused by decay or decomposition |
| **Streptococcus** | A dangerous germ resembling a chain of beads when seen under a microscope |
| **Systole** | The contracting phase of the heart's action |
| **Systolic** | Upper level of the blood pressure indicating the greatest force exerted by the heart |
| **Tachycardia** | Rapid heart beat |
| **Tetanus** | An infectious disease characterized by tonic spasm of the voluntary muscles an intense exaggeration of reflex activity and peculiar convulsions |
| **Thrombosis** | Clogging of a blood vessel caused by the formation of a clot. |
| **Tinnitus** | Ringing in the ears |

**Tourniquet** — A tight band used to stop bleeding

**Toxin** — A poisonous substance produced by the action of micro organisms

**Tranquillizer** — Drug used to quiet the nerves

**Umbilicus** — Navel or depression in centre of the abdomen

**Urea** — Chief excretory product of nitrogen metabolism A normal constituent of the blood, excreted into the urine

**Uric acid** — A normal constituent of blood due to protein metabolism Excessive uric acid usually means the patient has gout

**Urticaria** — Hives

**Vaccine** — Biological material injected into the body to protect against disease

**Varicosity** — A swollen, twisted vein

**Vertigo** — The feeling that the immediate surroundings are whirling around, or that the person is moving in space

**Virus** — The poison of an infectious disease, especially one found in the secretion or tissues of an individual or animal suffering from an infectious disease

**Volvulus** — A twisting of the bowel

**Wassermann** — Blood test to determine presence of syphilis

**Wheezing** — Noisy and difficult breathing, usually due to bronchial asthma

# INDEX

FACE